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OFFICIAL GAZETTE

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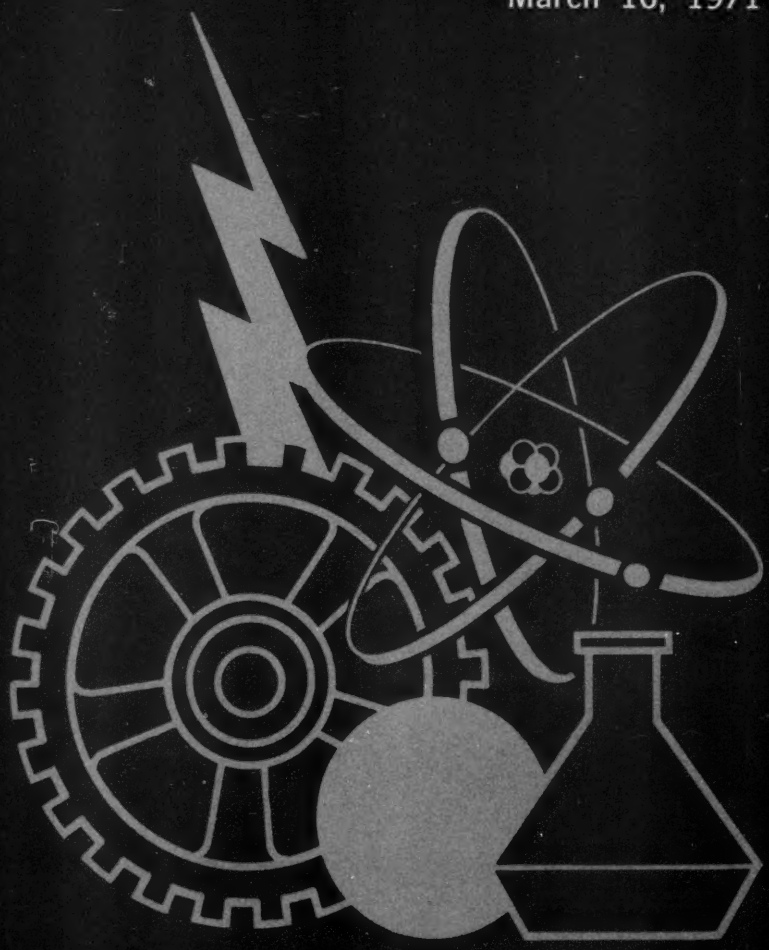
PATENTS

March 16, 1971



U. S. DEPARTMENT OF COMMERCE

Patent Office

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

March 16, 1971 Volume 884 Number 3

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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENTS SECTION), issued weekly, subscription $89.00 per annum, foreign mailing $22.25 additional; single copies $2.00 each.

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Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.O.

PATENT OFFICE NOTICES

Notice of Trademark Publications in February and March

Beginning Feb. 2, 1971, the OFFICIAL GAZETTE of the United States Patent Office, consisting of patent and trademark Sections, was separated into two distinct publications, the "OFFICIAL GAZETTE (Patent Section)" and the "OFFICIAL GAZETTE (Trademark Section)." Those subscribing to the OFFICIAL GAZETTE prior to the separation have received only the OFFICIAL GAZETTE (Patent Section) beginning with the date of its separation unless they requested a subscription to the OFFICIAL GAZETTE (Trademark Section). An effort was made to notify these subscribers that they would not receive the OFFICIAL GAZETTE (Trademark Section) after the separation on February 2 unless they subscribed separately to this publication. However, the notice has been misinterpreted by some former subscribers who, accordingly, have not requested a separate subscription to the OFFICIAL GAZETTE (Trademark Section) and, therefore, have not received this publication.

In view of the above, jurisdiction will be restored for all marks published for opposition on Feb. 2, 9, 16, and 23, Mar. 2, 9, and 16, 1971, to the Examiner of Trademarks and these marks will, by notice in the OFFICIAL GAZETTE (Trademark Section) of Mar. 23, 1971, be republished for opposition by reference to the OFFICIAL GAZETTE (Trademark Section) for those dates. The republication of these marks by reference will be effective as a publication in accordance with Section 12(a) of the Trademark Act of 1946 for the purpose of opposition by any person who believes he will be damaged by the registration of the mark. Oppositions to such republished marks may be filed within the time specified by Section 13 of the Statute or by Rules 2.101 and 2.102 of the Trademark Rules of Practice. Any opposition received after the original publication and on or before Apr. 22, 1971, will be deemed to have been timely filed.

In addition, all persons desiring to receive the OFFICIAL GAZETTE (Trademark Section) should contact the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Subscription to this publication costs $17.00 per annum. The Superintendent of Documents has advised that all persons subscribing during March will receive the previous February and March issues of the OFFICIAL GAZETTE (Trademark Section) until the excess weekly inventory of approximately 3000 copies is exhausted.

WILLIAM E. SCHUYLER, JR.,
Feb. 25, 1971. *Commissioner of Patents.*

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,594,256, C. E. Compton, MINING MACHINE HEAD; **2,760,255,** same, SCREW CONVEYOR AND MANUFACTURE THEREOF; **2,760,624,** same; **2,784,955,** same, MINING MACHINE CUTTER HEAD WITH REAR HELICALLY EXTENDING TRANSVERSE OPENING; **2,719,708,** same, PAN GUIDEWAY FOR ROTARY MINING HEAD, **filed** Nov. 2, 1970, U.S. Ct. of App. 4th Cir., Virginia (Richmond), Doc. 15,248, *Metal Products, Inc.* v. *Charles E. Compton, Joy Manufacturing Company, and Polan Industries, Inc.*

2,719,708. (See 2,594,256.)

2,760,255. (See 2,594,256.)

2,760,624. (See 2,594,256.)

2,784,955. (See 2,594,256.)

2,845,046. (See 3,405,686.)

2,921,786, Deichmann and Becker, CLOTH SPREADING MACHINES; **3,067,996,** E. Theodosiou, FOLD RETAINING DEVICE FOR CLOTH LAYING MACHINES; **3,112,107,** same, HIGH SPEED CLOTH LAYING MACHINE; **3,203,638,** same, **filed** Jan. 22, 1968, D.C., S.D.N.Y., Doc. 68–C–278, *Cutting Room Appliances Corp.* v. *Sam Zuckerman Sewing Machine Corp.* Order dismissing action for lack of prosecution, May 26, 1970.

2,988,604, W. M. Nye, RECORDING AND REPRODUCING SYSTEM; **3,024,320,** same, DICTATING MACHINE ERASURE UNIT; **2,989,594,** M. B. McKaig, MAGNETIC TAPE RECORDING AND REPRODUCING MACHINE, **filed** July 1, 1969, D.C., W.D. Wash. (Seattle), Doc. 8374, *Nye Systems, Inc.* v. *Lanier Business Products, Inc.* Consent dismissal. (This case was transferred from the W.D. of Washington to N.D. Georgia (Atlanta).)

2,989,594. (See 2,988,604.)

2,996,754, Ziegler and Carrier, HYDRAULIC DOOR CLOSER; **3,161,908,** P. Walach, same, **filed** Oct. 27, 1970, D.C. Minn. (St. Paul), Doc. 3–70–299, *Hartzel Manufacturing, Inc.* v. *Ideal Security Hardware Corporation.*

3,002,200, C. E. Murcott, ADJUSTABLE GUARD FRAME FOR BEDS AND THE LIKE; **3,089,152,** same; **3,097,370,** same, FOUR-WAY ADJUSTABLE BED RAIL UNIT, **filed** June 18, 1969, D.C., S.D.N.Y., Doc. 69–C–2655, *Lumex Inc.* v. *Edco Surgical Supply Co. Inc.* Stipulation and order of dismissal, with prejudice, Oct. 6, 1970.

3,024,320. (See 2,988,604.)

3,067,996. (See 2,921,786.)

3,089,152. (See 3,002,200.)

3,097,370. (See 3,002,200.)

3,112,107. (See 2,921,786.)

3,127,668, W. C. Troy, HIGH STRENGTH-VARIABLE POROSITY SINTERED METAL FIBER ARTICLES AND METHOD OF MAKING THE SAME; **3,487,457,** J. I. Fisher, REINFORCED METAL FIBER COMPOSITES; **3,490,902,** same, METAL FIBER REINFORCEMENT, **filed** Oct. 5, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2461, *A.R.F. Development Corp. et al.* v. *Brunswick Corp.*

3,161,908. (See 2,996,754.)

3,203,638. (See 2,921,786.)

3,275,680, Holzrichter, Kronig and Frenz, PRODUCTION OF ORGANIC ACETATES IN PRESENCE OF A NOBLE METAL CATALYST AND OXYGEN, **filed** June 29, 1970, D.C., S.D. Tex. (Houston), Doc. 70–H–681, *Farbenfabriken Bayer Aktiengesellschaft* v. *National Distillers and Chemical Corp.*

3,328,536, E. C. Bolick, Jr., REMOTE CALL-IN MULTIPLE RECORDER SWITCHING SYSTEM; **3,347,432,** same, ENDLESS TAPE CONTROL DEVICE, **filed** July 31, 1969, D.C., N.D. Ga. (Atlanta), Doc. 12965–C, *Lanier Electronic Laboratory, Inc.* v. *Nye Systems, Inc.* Consent dismissal, Oct. 21, 1970.

3,347,432. (See 3,328,536.)

3,367,809, R. S. Soloff, SONICS, **filed** Oct. 13, 1970, D.C. Conn. (New Haven), Doc. 14081, *Branson Instruments, Incorporated* v. *Sonics and Materials, Inc. and Robert S. Soloff.*

3,389,365. (See Re. 26,781.)

3,405,686, H. W. Hart, WATERING SYSTEM FOR NEWLY HATCHED FOWLS; **2,845,046,** same, WATER SUPPLYING DEVICE FOR POULTRY, **filed** Oct. 26, 1970, D.C., S.D. Ohio (Cincinnati), Doc. 7721, *Harold W. Hart and H. W. Hart Manufacturing Co.* v. *Tidy Manufacturing Corporation, Ltd.*

3,437,457. (See 3,127,668.)

3,463,342, Bender, Fraser and Thompson, ADAPTER FOR CONTROLLED CLOSURE OF EVACUATED CONTAINERS; **3,474,543,** Bender and Thompson, METHOD AND APPARATUS FOR SIMULTANEOUSLY FREEZE DRYING A PLURALITY OF BACTERIAL CULTURES, **filed** Oct. 28, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2683, *Cenco Medical/Health Supply Corp.* v. *Thermovac Industries, Corp., Albert Stanley & Co. and Albert Mendelson.*

3,474,543. (See 3,463,342.)

3,475,070, T. C. Hoshall, DISPLAY CASE, **filed** Oct. 23, 1970, D.C., W.D .Okla. (Oklahoma City), Doc. 70–526–C, *Thomas C. Hoshall and Rainbo Photo Color, Inc.* v. *Mid-Continent News Company.*

3,490,902. (See 3,127,668.)

Re. 26,781, C. J. Frenzel, TRIGGER ACTUATED SWITCH DEVICE; **3,389,365,** B. H. Matthews, VARIABLE RESISTOR WITH SWITCH, **filed** June 24, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c1523, *Skil Corporation* v. *Rockwell Mfg. Co.*

Certificates of Correction for the Week of Mar. 16, 1971

Re. 26,935	3,523,150	3,534,633	3,545,869
Re. 26,981	3,523,616	3,534,861	3,546,421
D. 218,491	3,524,155	3,534,864	3,546,734
D. 219,059	3,524,335	3,536,362	3,546,743
3,388,859	3,524,597	3,536,627	3,547,130
3,436,057	3,524,862	3,537,980	3,547,405
3,483,235	3,525,158	3,538,044	3,547,461
3,494,954	3,526,044	3,539,374	3,547,557
3,501,477	3,526,057	3,539,584	3,547,923
3,505,290	3,526,107	3,539,647	3,547,942
3,507,004	3,526,112	3,539,735	3,547,983
3,515,357	3,527,236	3,539,765	3,548,303
3,515,512	3,527,271	3,540,693	3,548,568
3,516,442	3,528,027	3,541,087	3,548,895
3,517,465	3,528,242	3,541,144	3,549,016
3,517,769	3,528,576	3,541,858	3,549,026
3,520,252	3,530,173	3,543,305	3,549,887
3,520,701	3,531,269	3,543,744	3,550,504
3,520,757	3,531,270	3,543,779	3,550,550
3,521,099	3,531,408	3,544,049	3,550,785
3,521,570	3,532,699	3,544,171	3,551,342
3,522,017	3,533,296	3,544,463	3,551,716
3,522,279	3,533,482	3,545,492	3,555,545
3,523,015	3,534,546	3,545,785	

Service by Publication

Sam L. Leach

In accordance with Rule 47 of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on January 6, 1965, of an application for patent entitled "Apparatus For Making Pictorial Parallax Panoramagram Units," on behalf of Sam L. Leach, whose last known address is 101 Thorncliff Lane, St. Louis, Missouri, 63122. The application was filed under the provisions of Rule 147 as a divisional of an application earlier made in compliance with Rule 47(a) and 35 U.S.C. 116 by joint inventor Harold D. Rice without execution by the said Sam L. Leach. Notice of the filing directed to the above noted address has been returned undelivered.

Any action to be taken by the said Sam L. Leach in connection with the present application must be taken within thirty days of the publication of this notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Patents Available for Licensing or Sale

3,528,899. METHOD OF BROMINATING THE SIDE CHAIN OF AN ALKYL BENZENE. Emil Plander et al., Prague, Czechoslovakia. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,530,453. SNOWFALL ALARM. Denis Rossier, Switzerland. Correspondence to: Elton Industries, Inc., 420 Jericho Turnpike, Jericho, N.Y., 11753.

3,533,640. DOLLY CONSTRUCTION. George D. Fator, 3233 Windsor Drive, Sacramento, Calif., 95825.

3,541,799. BRACING CONSTRUCTION. Hans Jost et al. Correspondence to: Darby & Darby, 405 Lexington Ave., New York, N.Y., 10017.

3,545,109. ATTACHMENT FOR REMOVING WET SNOW AND SLUSH, FOR DETACHABLE COUPLING TO A RAISABLE AND LOWERABLE SNOW PLOW. Marcel Boschung, Switzerland. Correspondence to: Werner W. Kleeman, Suite 315, 1225 Connecticut Ave., Washington, D.C., 20036.

The following 3 patents are offered by John W. Barnd, 32 Hollybrook Road, Paramus, N.J.

3,351,128. MULTI-ZONE TEMPERATURE CONTROL.

3,496,991. FLUID TEMPERATURE REGULATING METHOD AND APPARATUS.

3,515,345. MULTI-ZONE TEMPERATURE CONTROL.

General Electric Company is prepared to grant non-exclusive licenses under the following 41 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: General Electric Company, Appliance Components Division, 1635 Broadway, Fort Wayne, Ind., 46804. Attention: Patent Counsel.

2,831,934. POTENTIAL RELAY.

Applications for license under the following patent may be addressed to: Patent Counsel, Aerospace Electronics, General Electric Company, Utica, N.Y., 13503.

2,860,751. POSITIONING DEVICE.

Applications for license under the following 2 patents may be addressed to: Division Patent Counsel, Power Transmission Division, General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,539,691. GLASS FURNACE WITH IMPROVED PARTIALLY IMMERSED ELECTRODE.

3,531,686. LAMP BALLAST CIRCUIT FOR DUAL VOLTAGE SUPPLIES.

Applications for license under the following 2 patents may be addressed to: Division Patent Counsel, Space Division, General Electric Company, P.O. Box 8555, Philadelphia, Pa., 19101.

3,546,961. VARIABLE FLEXIBILITY TETHER.

3,548,222. THERMIONIC POWER GENERATION APPARATUS.

Applications for license under the following 8 patents may be addressed to: Patent Counsel, Appliance and Television Business Group, General Electric Company, Appliance Park, Louisville, Ky., 40225.

3,170,743. DOMESTIC APPLIANCE.

3,404,700. LIQUID LEVEL CONTROL MEANS.

3,466,105. DOOR-OPERATED RACK EXTENDING AND RETRACTING MEANS FOR A FRONT-OPENING APPLIANCE CABINET.

3,466,108. DOOR-OPERATED RACK EXTENDING AND RETRACTING MEANS FOR A FRONT-OPENING APPLIANCE CABINET.

3,529,775. DISCHARGE DEVICE FOR AN AUTOMATIC WASHING MACHINE.

3,530,306. DISHWASHER CONTROL CIRCUIT.

3,536,056. SELF-CLEANING, CATALYTIC COATED, COOKING OVEN.

3,536,457. CATALYTIC OXIDATION UNIT FOR DOMESTIC OVEN EXHAUST.

Applications for license under the following 8 patents may be addressed to: General Electric Company, Appliance Components Division, 1635 Broadway, Fort Wayne, Ind., 46804. Attention: Patent Counsel.

3,183,315. PUSH BUTTON SWITCH WITH DETENT ARRANGEMENT.

3,245,026. SNAP-IN FLUORESCENT LAMPHOLDERS WITH QUICK-CONNECT TERMINALS.

3,263,201. FLUORESCENT LAMPHOLDER WITH QUICK-CONNECT TERMINALS.

3,285,560. MOUNTING ARRANGEMENT FOR A FLUORESCENT LAMPHOLDER ASSEMBLY.

3,514,168. DYNAMOELECTRIC MACHINE INCORPORATING A LUBRICATED THRUST BEARING SYSTEM.

3,515,902. SYNCHRONOUS SWITCHING CIRCUIT.

3,515,918. PLURAL ROTOR OIL SLINGER.

3,528,103. INDUCTION MOTOR AND STARTING AND REVERSING CIRCUIT THEREFOR.

Applications for license under the following 18 patents may be addressed to: General Electric Company, Power Distribution Division, 100 Woodlawn Ave., Pittsfield, Mass., 01201. Attention: Division Patent Counsel.

2,779,899. TIME DELAY CONTROL SYSTEM.

3,187,146. BUSHING FUSE PROVIDED WITH A FUSE BODY OF STRONG INSULATING MATERIAL HAVING FLATTENED ENDS.

3,225,224. DISTRIBUTION TRANSFORMER LIGHTING ASSEMBLY.

3,233,198. HERMETICALLY SEALED DISTRIBUTION TRANSFORMER.

3,233,311. METHOD OF MAKING ENCAPSULATED COILS.

3,297,938. VOLTAGE REGULATING SYSTEM.

3,388,211. SEALING BUSHING AND WALL MEMBER FOR ELECTRICAL APPARATUS AND METHOD OF ASSEMBLING SAME.

3,480,898. COMBINED FUSE AND SWITCH OPERATOR ASSEMBLY.

3,524,033. BYPASS SWITCH AND VACUUM INTERRUPTER.

3,524,178. VOLTAGE INDICATOR AND TEST DEVICE.

3,530,968. TICKET HANDLING AND STORAGE MECHANISM ESPECIALLY USEFUL IN AUTOMATIC FARE COLLECTION SYSTEMS.

3,531,175. METHOD OF MANUFACTURING EVACUATED DEVICES.

3,531,627. TRANSIT TICKET HAVING FARE CODING MEANS FOR AUTOMATIC FARE COLLECTION SYSTEMS.

3,531,690. VOLTAGE SURGE DIVERTER.

3,538,382. TRIGGERED VACUUM GAP OVERVOLTAGE PROTECTIVE DEVICE.

3,543,097. DIRECT CURRENT LIGHTNING ARRESTER WITH AUTOMATIC ARC QUENCHING MEANS.

3,264,420. CABLE GROUNDING, THREE POSITION, SNAP ACTION SWITCH.

3,291,639. METHOD OF INSULATING ELECTRICAL CONDUCTORS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 9, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	9-29-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	4-30-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-12-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-02-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7-22-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	5-26-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-09-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	12-04-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	1-27-70
PHYSICS, GROUP 280—R. L. EVANS, Director. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	11-17-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	5-18-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	12-15-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	10-27-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-03-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director. Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	3-19-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	1-06-70

Expiration of patents: The patents within the range of numbers indicated below expire during March 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,670,468 to 2,673,977, inclusive
Plant Patents..... Numbers 1,260 to 1,266, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED MARCH 16, 1971

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T884,008
ELECTRICAL CONDUCTOR HAVING AN INSULATION COVERING OF A POLYIMIDE FILM HAVING FLUOROCARBON RESIN COATINGS

Carl Gumerman, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

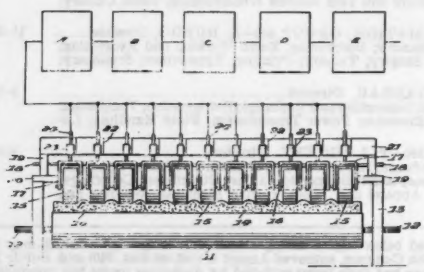
Filed Sept. 17, 1969, Ser. No. 858,878
Int. Cl. B44d *1/14*
U.S. Cl. 117—218
No Drawing. 17 Pages Specification

An insulated electrical conductor is provided wherein the insulation covering is a polyimide film having a fluorocarbon polymeric coating of FEP or PTFE on at least one surface thereof, and wherein further the insulated conductor has an overcoating or external layer of a blend of between about 10% and about 35% by weight, based upon the total overcoating weight, of FEP fluorocarbon polymeric material and between about 65% and about 90% by weight, based upon the total overcoating weight, of PTFE fluorocarbon polymeric material; optionally, the overcoating may have up to about 35% by weight, based upon the total overcoating weight, of a pigment. The terms FEP and FEP fluorocarbon material both refer to copolymers of tetrafluoroethylene and hexafluoropropylene, and PTFE refers to homopolymers of tetrafluoroethylene. Representative pigments which can optionally be used in the overcoating include titanium dioxide, cadmium selenide red and lamp black.

T884,009
COMPRESSION UNIFORMITY ANALYSER

Malak E. Yunan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 13, 1969, Ser. No. 876,594
Int. Cl. G01b *5/00*
U.S. Cl. 33—148
1 Sheet Drawing. 17 Pages Specification



Thickness of a resilient batt is continuously detected as the batt travels in a linear path by apparatus comprising:

(1) a horizontal support;
(2) a plurality of weighted sensors responsive to compressed batt thickness;
(3) a plurality of transducers connected to said sensors; and
(4) a computational circuit connected to the transducer outputs comprising:
  (a) a first amplifier,
  (b) a first circuit means coupled to the output of said first amplifier for producing a signal representing the average output level of said first amplifier for a particular time interval,
  (c) a second amplifier for multiplying the difference between the transducer output signals and the output of said first amplifier,
  (d) operational amplifying and signal averaging means coupled to said second amplifier for producing an output proportional to the average mean deviation of the output of said second amplifier, and
  (e) a second circuit means coupled to said operational amplifying and signal averaging means for dividing the output thereof by a signal proportional to the output of said first circuit means, the output of said second circuit means being a representation of compressed batt thickness.

T884,010
ORIENTED FOAM LAMINAR STRUCTURES

Leon Edward Wolinski, Buffalo, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

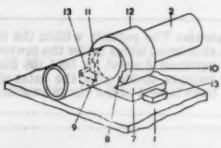
Filed Jan. 22, 1970, Ser. No. 5,138
Int. Cl. B32b *3/12*
U.S. Cl. 161—88
No Drawing. 5 Pages Specification

A laminar structure comprising a core of oriented closed cell styrene polymer foam of specific elongation and tensile modulus having fabric and thermoformable thermoplastic film bonded to a first and second side of a foam core, respectively.

T884,011
CLIPS

Paul Johnson Garner, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jan. 29, 1970, Ser. No. 6,804
Claims priority, application Great Britain, Feb. 3, 1969, 5,715/69
Int. Cl. A44b *21/00*
U.S. Cl. 24—73
2 Sheets Drawing. 6 Pages Specification

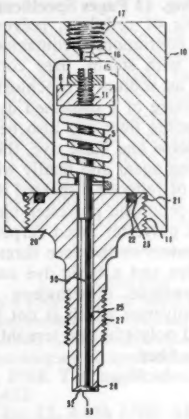


A clip is disclosed for attaching a thermoplastic panel to a metal frame used to reinforce the thermoplastic panel. The clip is preferably made of a stiff thermoplastic material and the base is shaped so as to engage sites integrally molded on the surface of the thermoplastic

panel. Two arms extend above the base which receive and grip the metal frame or tubular member. Each arm carries a lug at or near its end. A transverse locking member is placed over the arms securing the tubular member between the arms.

Preferably the clip is slidably engaged with the thermoplastic panel to permit movement in transverse direction to the rod. Thermoplastic panels thus reinforced are useful for auto panels, for example, Hoods, and enjoy the advantages of slidability to correct minor inaccuracies in automobile production and compensation for the thermal expansion of the tubular frame by sliding. Thermoplastic materials suitable for the production of clips are isotatic polymers of propylene, high density polyethylene, copolymers of propylene with ethylene, acrylonitrile-butadiene-styrene copolymers, acetal copolymers and nylons.

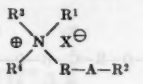
T884,012
INJECTION VALVE
Herbert Blades, Hockessin, Del., and Donald W. Johnson, Donelson, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 3, 1970, Ser. No. 8,354
Int. Cl. F16k *17/04*
U.S. Cl. 137—541
1 Sheet Drawing. 4 Pages Specification



An injection valve that includes a body having inlet and outlet ends connected by a passage which has successive cylindrical and tapered lengths. A stem having a cylindrical portion somewhat smaller than the cylindrical length of the passage and a tapered portion that matches the tapered length of the passage extends into the passage. A biasing means connected between the valve body and the stem urges the tapered portion of the stem into engagement with the tapered length of the passage to seal and close off the passage at the outlet end.

T884,013
SILVER HALIDE REVERSAL COMPOSITIONS
Norman Wayne Kalenda, % Eastman Kodak Co., Kodak Park Division, Rochester, N.Y. 14650
Filed Apr. 23, 1970, Ser. No. 31,384
Int. Cl. G03c *1/08*
U.S. Cl. 96—102
No Drawing. 17 Pages Specification

Improved silver halide compositions are disclosed which can be reversal-processed in fogging developers such as disclosed in U.S. Patents 2,563,785 by Ives and 2,497,875 by Falleson. Good reversal images can be obtained with internal-image silver halide emulsions even if they have some surface sensitivity. In one embodiment, the improved silver halide emulsions disclosed herein comprise an internal-image silver halide emulsion comprising a merocarbocyanine dye and a sulfonated derivative of a polynuclear carbocyclic and/or a compound of the formula:



wherein R^1 is an alkyl or aryl group containing 1 to about 12 carbon atom, R^2 is an alkyl group of 1 to about 12 carbon atoms, R is an alkylene group having from 1 to about 6 carbon atoms and preferably is a methylene group, X is an anion, A is a sulfur atom or a sulfone group, and R^3 and R^4 are alkyl groups of from 1 to about 8 carbon atoms or they are together the necessary atoms to form a heterocyclic group which is preferably a monocyclic group having from 5 to 7 atoms in the ring. In another embodiment, a silver halide emulsion which has been sulfur- and gold-sensitized can be bathed in an alkylene-bis benzothiazolium salt after exposure, followed by developing in a strongly alkaline solution containing an active developing agent to produce a reversal image. In still another embodiment, a spectrally sensitized silver halide emulsion having some surface sensitivity and containing an aminoalkyl-substituted piperazine can be processed in a developer according to Ives, U.S. Patent 2,563,-785, to obtain a reversal image.

T884,014
FLAME RESISTANT CARPET
Clarence C. Dannnelly, % Tennessee Eastman Co., Box 511, Kingsport, Tenn. 37662
Filed May 18, 1970, Ser. No. 38,501
Int. Cl. C09k *3/28*
U.S. Cl. 117—137
No Drawing. 22 Pages Specification

A flame resistant carpet fabric comprising in combination a woven backing, a polyester fiber tufted into the woven backing, and a coating securing the polyester fiber into the woven backing. The coating can comprise a polymeric material and a material selected from the group consisting of a flame resisting agent, a filler, a pigment, and mixtures thereof. In this embodiment the flame resisting agent can contain halogen, phosphorus or halogen and phosphorus.

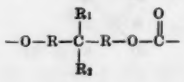
A flame resistant carpet fabric comprising in combination a woven backing, a polyester fiber tufted into the woven backing, and a coating securing the polyester fiber into the woven backing. The coating can comprise a halogen containing polymeric material. In this embodiment the coating can further comprise a material selected from the group consisting of a flame resisting agent, a filler, a pigment and mixtures thereof; and the flame resistant agent can contain halogen, phosphorus or halogen and phosphorus. In one embodiment the coating can comprise an aqueous dispersion containing, based on the weight of the dispersion, about 50 weight percent of a copolymer of vinyl chloride and vinylidene chloride, 25 weight parts tris(2,3-dibromopropyl) phosphate, and 5 weight parts 2-ethylhexyldiphenyl phosphate.

T884,015
COPOLYCARBONATE BINDERS FOR USE IN ELECTROPHOTOGRAPHIC ELEMENTS
William J. Staudenmayer, Pittsford, and Stewart H. Merrill, Rochester, N.Y. (both of Kodak Park Works, Rochester, N.Y. 14650)
Filed June 1, 1970, Ser. No. 42,523
Int. Cl. G03g *5/00*
U.S. Cl. 96—1.5
No Drawing. 54 Pages Specification

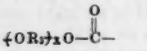
Photoconductive layers containing certain copolycarbonates as binders exhibit improved resistance to liquid developer attack. As a result, their lifetime is extended

when utilized in xerographic liquid development processes.

Useful binders are copolycarbonates having repeating units of

(I) 

and

(II) 

wherein R is an arylene radical including a substituted arylene radical; R_1 is (1) an aliphatic radical having 1 to 8 carbon atoms, (2) an aryl radical, (3) when joined with the adjacent arylene group, the carbon atoms necessary to complete a fused ring moiety, (4) when joined with R_2, the carbon atoms necessary to complete a monocycloalkylidene nucleus, (5) when joined with R_3, the carbon atoms necessary to complete a bridged cycloalkylidene group and (6) a cycloalkyl radical, all of (1) through (6) including substituted counterparts; R_2 represents a hydrogen atom or any of the substituents set forth for R_1; R_3 represents a lower alkylene group having 2 to 8 carbon atoms; and x is an integer such that the molecular weight of the group $+OR_3+_x$ is about 12 to about 6500. These copolycarbonates generally contain from about 2 to about 98% of repeating unit I and these binders can be either random or block copolymers.

T884,016

PROCESS FOR IMPROVING THE UNIFORMITY OF CRIMPED CONTINUOUS ACRYLIC TOW

Imre Mirko Jonkoff, Camden, S.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 29, 1970, Ser. No. 50,897
Int. Cl. D01g *1/06, 5/00*
U.S. Cl. 19—66
No Drawing. 8 Pages Specification

A process for improving the uniformity of crimped, continuous acrylic filament tow. The tow is forwarded into contact with at least one (preferably two) grooved applicator surface under sufficient tension to separate the filaments. The grooved applicator surface has outlets in the roots and/or crests of the grooves which are connected to an internal conduit. While in contact with the applicator surface, the filaments are heated at a temperature between about 95° C. and 160° C. by uniformly passing steam from the applicator surface onto the filaments. The steam pressure is preferably about 5 to 30 p.s.i.g. and the tow is preferably forwarded at speeds of about 125 to 175 yards per minute.

The process results in better tow quality as is indicated by a reduction in the static properties of the tow and a reduction in the crimp index of the fibers. This improvement provides for better tow processability into sliver (e.g., on a "Turbo Stapler"), a more uniform sliver (e.g., fewer defects) and better yarn uniformity.

T884,017

MULTIPLE STEP DISPERSE AND BASIC DYE PAD STEAM DYEING OF BLENDS OF POLYESTER AND BASIC DYEABLE POLYESTER WITH OR WITHOUT CELLULOSE DYED WITH CELLULOSIC DYES AND CARPETS DYED THEREBY

Melvin A. Caldwell, 1501 Greenfield Ave., Kingsport, Tenn. 37664

Filed June 29, 1970, Ser. No. 50,927
Int. Cl. D06p *3/82*
U.S. Cl. 8—21
No Drawing. 13 Pages Specification

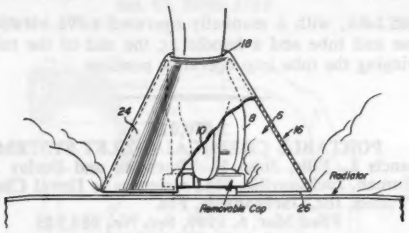
A composite fabric of cellulose, polyester and basic dyeable polyester is continuously contacted with a basic dye, then contacted with steam, then contacted with a clearing agent such as sodium hypochlorite and finally contacted with a mixture of a dispersed dye and a cellulosic dye. This composite fiber can also be dyed by contacting it with a disperse and basic dye, then with steam, then the above clearing agent and finally with a cellulosic dye. Polyester fibers of reduced dispersed dye affinity can be blended with the cellulosic polyester blend in the latter dyeing process. A polyester faced carpet with the first two mentioned polyesters as the face threads is dyed by padding a disperse dye and a basic dye and then steaming poly(1,4-cyclohexylene dimethylene terephthalate) is used as the first polyester which is not basic dye dyeable while a modified poly(ethylene terephthalate) is used as a basic dye dyeable fiber.

PATENTS

GRANTED MARCH 16, 1971

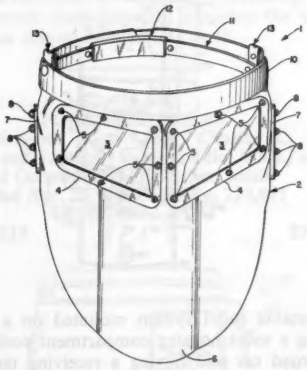
GENERAL AND MECHANICAL

3,570,009
HEAT RESISTANT SPRAY DEFLECTOR GLOVE
Harold G. Spruell, Jackson, Ga., assignor to Richard W. Watkins, Jr., Jackson, Ga., a fractional part interest
Filed Apr. 10, 1969, Ser. No. 814,999
Int. Cl. A41d *19/00*
U.S. Cl. 2—16 **3 Claims**



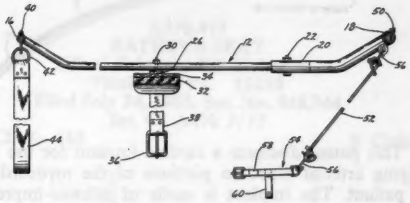
A safety-type glove for protective use when removing a dangerously pressurized automobile radiator cap, a leaking hot water, steam or vapor valve, leaky ammonia, Freon gas or like valves. The glove, or mitten, is made of suitable heat resistant material. It is wholly encased within the confines of an outwardly and downwardly flaring shield, more particularly, a truncated conical cuff made of heat resistant material and which is permanently turned down over and encloses the glove and provides a spray trapping and deflecting shield.

3,570,010
COMBINATION FACE SHIELD AND HOOD
George R. Hoffmaster and William R. Bohner, Reading, Pa., assignors to ESB Incorporated, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 754,220, Aug. 21, 1968. This application Mar. 5, 1969, Ser. No. 804,422
Int. Cl. A42b *1/08*; A61f *9/00*
U.S. Cl. 2—3 **5 Claims**



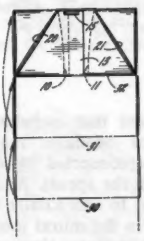
A combination face shield and hood which is particularly useful to protect the wearer against BB's fired by a rifle such as used in army infantry training. It includes a suspension which is readily attachable to an army helmet, two double lens portions and a hood portion for resisting BB shots. The hood portion contains two screened openings on the sides thereof for hearing and ventilation.

3,570,011
BACK SUPPORT
Charley Bertel Naig, Cylinder, Iowa 50528
Filed Oct. 3, 1968, Ser. No. 764,740
Int. Cl. A61f *5/37, 5/02, 13/00*
U.S. Cl. 2—44 **7 Claims**



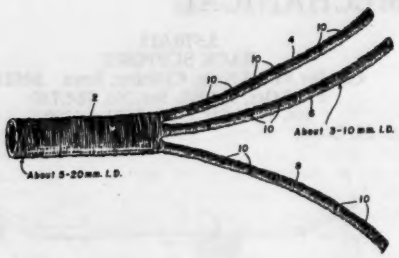
A device having an elongated rigid member including spaced apart elements embracing the wearer's back. A pair of end portions flared outwardly away from the wearer's back are connected through straps to the wearer's chest and ankles and feet. A belt is secured to the pair of elements for engagement around the wearer's waist to hold the elongated member in place on the wearer's back. The weight of the wearer's upper body portion is carried in part through the elongated member connected to the ankles and feet through an elastic connecting means when the wearer is in a stooped position.

3,570,012
SURGICAL GOWN
Terry L. Winters, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Mar. 12, 1969, Ser. No. 806,405
Int. Cl. A41b *9/00*
U.S. Cl. 2—114 **9 Claims**



A method of folding a surgical gown so that in its folded form it may be picked up as a unit and put on after shaking it out, with or without the help of an assistant, without touching any of the sterile outer surfaces of the gown. The folding process involves folding the sleeves of a back closing gown down over the closed front of the gown, folding the back flaps forwardly over the sleeves, folding the lower portion of the gown upwardly one or more times so that the armholes remain exposed, and then folding the gown transversely to form a small package with the armholes still exposed to facilitate handling and donning of the gown.

3,570,013
CARDIAC IMPLANT
Louis J. Blumen, 8 Carleton Drive, Pittsburgh, Pa. 15243
Filed June 19, 1968, Ser. No. 738,202
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **2 Claims**



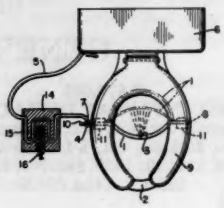
This patent discloses a cardiac implant for use in supplying arterial blood to portions of the myocardium of a patient. The implant is made of silicone-impregnated woven Dacron, pre-clotted in the patient's own blood, and comprises a main portion or tube which separates into a number of branch portions. Each of the branch portions is provided with a number of perforations. The main tube is grafted to the aorta, and the branches are inserted in the myocardium of the patient. Blood-vessel growth will take place in the vicinity of the perforations, so that collateral circulation is provided, e.g., to a heart impaired by coronary thrombosis.

3,570,014
STENT FOR HEART VALVE
Warren D. Hancock, 10601 Calm Hill Circle, Santa Ana, Calif. 92705
Filed Sept. 16, 1968, Ser. No. 759,858
Int. Cl. A61f *1/00*
U.S. Cl. 3—1 **36 Claims**

A heart valve stent that includes an annular framework, preferably of bendable material, having three rounded apexes interconnected by support arms curved to incline away from the apexes. Additional support arms are included parallel to and axially beyond the first support arms. For use in the mitral position, the framework is circumscribed by an outer ring, which receives an annular element of felt or other suitable material. The heart valve is positioned on the stent, with its marginal portions overlapping it and affixed to it by sutures.

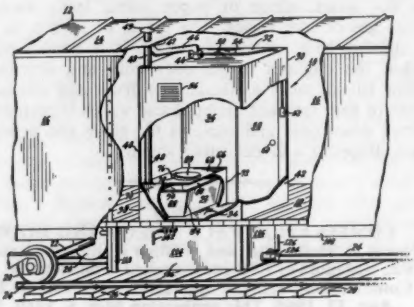
3,570,015
DOUCHING DEVICE
Fabian Rosengaus, Calle Morena 425, Col. de Valle, Mexico City, Mexico
Filed Aug. 1, 1968, Ser. No. 749,408
Int. Cl. A61h *35/00;* **E03d** *9/08*
U.S. Cl. 4—7 **4 Claims**

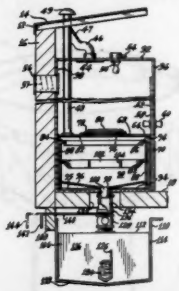
A douching attachment for toilet seats comprising a tube attached to the lower surface of the seat, journaled at each side, and shaped to swing entirely out of sight under the rear portion of the seat or down into the bowl where a vent directs a stream of water upward toward the users body, the tube being connected by a hose to the



flush tank, with a manually operated valve between the hose and tube and a handle on the end of the tube for swinging the tube into operative position.

3,570,016
PORTABLE CHEMICAL TOILET SYSTEM
Francis L. Ellis, John H. Thornton, and Burley Frank Inman, Jacksonville, Fla., assignors to Duval Chemical Toilets, Inc., Jacksonville, Fla.
Filed Mar. 6, 1969, Ser. No. 804,935
Int. Cl. B61d *35/00*
U.S. Cl. 4—8 **10 Claims**

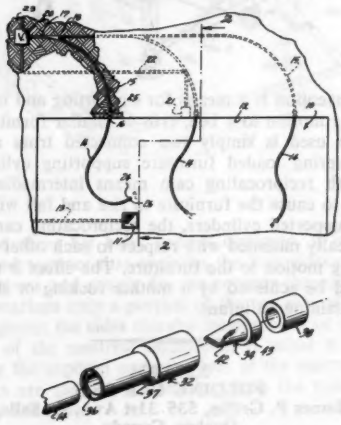




A portable toilet system mounted on a railroad car including a toilet housing compartment positioned within the railroad car and having a receiving tank positioned therein adapted to contain a liquid chemical solution for decomposing purposes and a toilet seat having an opening therethrough mounted in the compartment. The receiving tank has a passageway communicating with the toilet seat opening and is adapted and arranged to receive excrement from the toilet seat opening. The system also includes an enclosed holding tank positioned below the receiving tank and exteriorly of the railroad car therebeneath which is adapted and arranged to receive and hold

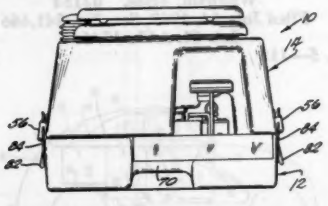
periodic discharges of the contents of the receiving tank after excreta has built up therein, and passage means communicating between the tanks with selectively operable valve means positioned in the passage means for transferring the contents of the receiving tank into the holding tank. The handle of the valve means is inaccessible to the user of the toilet within the compartment and is operable from a position exteriorly of the railroad car.

3,570,017
SWIMMING POOL CLEANING APPARATUS
Wayne P. Reece, Orange County, Fla., assignor to Tropicana Pools, Inc., Orange County, Fla.
Filed June 23, 1969, Ser. No. 835,613
Int. Cl. E04h *3/18*
U.S. Cl. 4—172.16 **9 Claims**



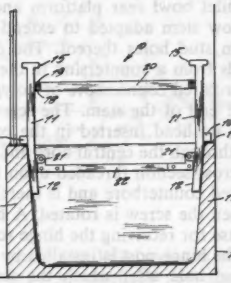
An extending and retracting apparatus for swimming pool cleaning devices of the silt agitating type in which tubes extend from the walls of the swimming pool to agitate silt, and the like, settled on the pool bottom in order to suspend the silt in the water of the pool so that it may be filtered out through the swimming pool filter. A one-way valve is placed within the extending tube of the swimming pool cleaning apparatus to improve the extension and retraction of the tube by increasing the pressure of the water extending and retracting the tube into and out of the side of a swimming pool.

3,570,018
PORTABLE TOILET
Ronald J. Sargent, Ann Arbor, Charles L. Sargent, Ypsilanti, and Frank T. Sargent, Clio, Mich., assignors to Thetford Corporation, Ann Arbor, Mich.
Filed Apr. 25, 1968, Ser. No. 724,071
Int. Cl. E03d *5/016*
U.S. Cl. 4—115 **21 Claims**



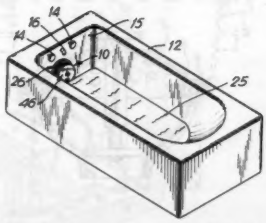
A self-contained portable sanitation unit formed in two sections. The top section includes a seat, seat cover and bowl which has a hollow wall structure serving as a water storage compartment for flushing purposes. The bottom section is the holding tank. In use, the two sections are held together by clamps. A flushing plunger is provided at the rear of the top section for flushing the unit. The holding-tank section is sealed from the environment by a normally closed slide valve element in the passageway that provide communication with the top section. The slide valve element is opened for flushing purposes by depressing a foot pedal located at the front side of the unit. For tank evacuation, the top section is removed by releasing the clamps and the holding tank can be carried like a suitcase by means of an integral handle on one side and is evacuated by emptying into a nearby permanent toilet facility.

3,570,019
BATHTUB SEAT
Alfred Osborne, 222 Walter St., Pittsburgh, Pa. 15210
Filed July 24, 1969, Ser. No. 845,944
Int. Cl. A47k *3/12*
U.S. Cl. 4—185 **5 Claims**



A convenient seat for a person within a bathtub, the seat comprising a pair of vertical side panels slideable along opposite sides of the tub, the vertical side panels supporting therebetween a removeable upper seat and a hinged lower seat, thus accommodating fully adjustably all persons.

3,570,020
ADJUSTABLE VALVE FOR BATHTUBS OR THE LIKE
Mikio Kato, 1003 Nottingham Place, La Vale, Md. 21502
Filed July 22, 1969, Ser. No. 843,302
Int. Cl. E03c *1/244*
U.S. Cl. 4—206 **18 Claims**

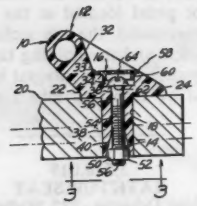


An adjustable valve for use in a bathtub, basin, or the like to select the overflow level of the water therein. The valve includes a cover rotatably mounted relative to a housing secured to the side wall of the tub and having a liquid flow passage that communicates with the exit port in the tub. Indicating means is provided to select the desired level of water before it will overflow through the safety valve, with control means to be gripped by the user in adjusting the cover. Depending on the size of the cover the range of adjustment may be from two to fifteen inches, or more.

3,570,021
TOP-INSTALLABLE TOILET SEAT HINGE POST

Robert E. Watson, Farmington, Mich., assignor to Swedish Crucible Steel Company, Detroit, Mich.

Filed Mar. 20, 1969, Ser. No. 808,805
Int. Cl. A47k 13/12
U.S. Cl. 4—240 2 Claims

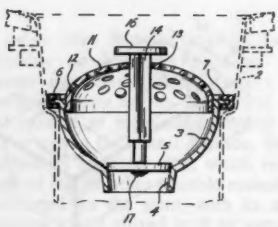


This toilet seat hinge post has a base adapted to rest upon the toilet bowl rear platform and a longitudinally-slotted hollow stem adapted to extend down into one of the platform stud holes thereof. The central bore in the stem extends from a countersink in the top of the base to a tapered or flared counterbore of polygonal cross-section at the lower end of the stem. The screw of an expanding bolt having its head inserted in the countersink extends downward through the central bore and has its nut, also of polygonal cross-section threaded upon its lower end within the tapered counterbore and is thereby prevented from rotating when the screw is rotated. A hinge post ear rises from the base for receiving the hinge rod of the toilet seat or cover. The hinge post is installed by dropping the stem into the stud hole after which the screw of the bolt is tightened, causing the nut thereon to travel upward into the tapered counterbore and expand the circumferentially-spaced fingers formed by the longitudinal slots of the stem into tight gripping engagement with the side wall of the stud hole. A removable flanged cap is then inserted in the countersink to conceal the head of the screw. To remove the hinge post, the foregoing procedure is reversed.

3,570,022
DISPOSAL INTAKE CONTROL

Olan C. Nealy, 4625 N. Freeway, Houston, Tex. 77022

Filed Nov. 26, 1968, Ser. No. 779,195
Int. Cl. A47k 1/14
U.S. Cl. 4—287 4 Claims

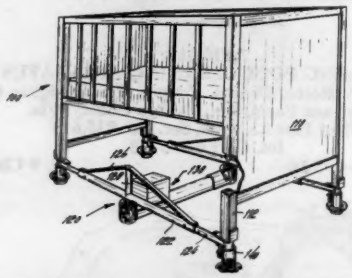


An intake control for disposal units mounted in a kitchen sink, and the like, that sits in the intake conduit of the disposal unit and has a lower member in which an outlet passageway is formed, an upper member mountable in said lower member, said upper member having perforations therein and an outlet valve and valve stem, said unit having means for sealing the discharge conduit, and being removable from said discharge conduit by merely lifting same out of the conduit intake opening.

3,570,023
FLOATING ACTION FURNITURE SUPPORT AND RELAXER

Gerald A. Bennett, 36 Draper St., Oswego, N.Y. 13126

Filed Mar. 7, 1969, Ser. No. 812,535
Int. Cl. A61g 7/00; A47d 9/02
U.S. Cl. 5—109 7 Claims

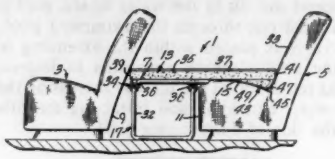


The invention is a means for supporting and imparting a floating motion to a bed, crib or similar furniture. The structure used is simply two connected truss members having spring loaded furniture supporting cylinders at ends with reciprocating cam means intermediate ends, adapted to cause the furniture to rise and fall with in the spring supported cylinders, the reciprocating cams being eccentrically mounted with respect to each other to cause a rocking motion to the furniture. The effect is the same as would be achieved by a mother rocking or shaking a crib containing an infant.

3,570,024
FOLDING CAR BED

James P. Griffin, 535 31st Ave., La Salle, Quebec, Canada

Filed Nov. 12, 1968, Ser. No. 774,757
Claims priority, application Canada, Oct. 21, 1968, 33,149
Int. Cl. A47c 19/16
U.S. Cl. 5—118 9 Claims

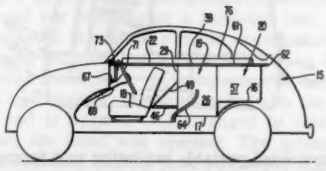


A portable car bed for cooperation with a seat in a car to form a bed area.

3,570,025
SLEEPING AND STORAGE UNIT FOR SMALL SEDANS

Paul F. Sullivan, 16 Sagamore Way, Waltham, Mass. 02154

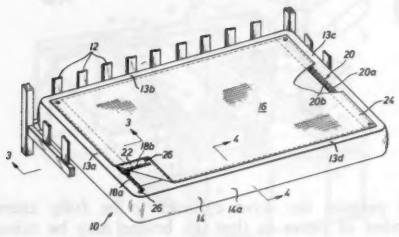
Filed July 14, 1969, Ser. No. 841,466
Int. Cl. A47c 17/64
U.S. Cl. 5—118 10 Claims



A sleeping and article storing kit particularly adapted for use in a Volkswagen sedan characterized by rela-

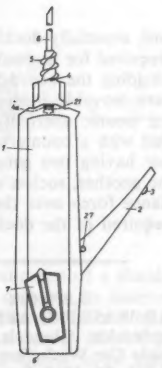
tively few parts which can be assembled or knocked-down in minimum time and providing comfortable sleeping accommodations for two and maximum storage space for a variety of articles in the rear quarters of the vehicle customarily occupied by the rear seat.

3,570,026
BABY BED SHEET WITH REMOVABLE PANEL
Frances W. Allison, 2230 Sul Ross, Houston, Tex. 77006
Filed May 20, 1968, Ser. No. 730,416
Int. Cl. A47g *9/04*
U.S. Cl. 5—334 **3 Claims**



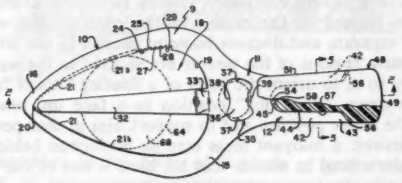
A bed sheet for baby beds is disclosed. It includes a contoured retainer that encircles the four sides of a baby bed mattress and snugly fits the contour thereof. The retainer overlaps only a portion of the top side of the mattress adjacent the sides thereby leaving most of the upper surface of the mattress uncovered. A panel is provided to cover the exposed upper surface of the mattress. Slide fasteners are used to releasably attach the panel to the contoured retainer.

3,570,027
COMBINATION DEVICE FOR OPENING OF BOTTLES, CANS, CONTAINERS AND CASKS OF ALL TYPES
Walter Steiner, Oberseenerstrasse 14, Winterthur, Switzerland
Filed Nov. 4, 1968, Ser. No. 773,022
Claims priority, application Switzerland, Nov. 7, 1967, 15,525/67
Int. Cl. B25f *1/00*
U.S. Cl. 7—14.2 **17 Claims**



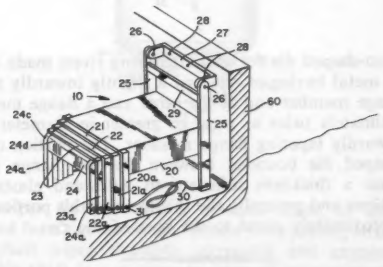
There is disclosed a multipurpose utensil or combination device readily suitable for opening bottles, cans, containers, and casks of all types, or the like, which is of the type incorporating a graspable body member at which there is accommodated a can opener mechanism and also a cork puller mechanism. The can opener mechanism includes a transport wheel and the cork puller mechanism includes a pressure generating device. Both the transport wheel of the can opener mechanism and the pressure generating device of the cork puller mechanism can be actuated by a single lever which is pivotably mounted to the graspable body or housing.

3,570,028
JAR AND BOTTLE OPENER
Rodolphe V. de la Hitte, 2547 Musgrave St., Victoria, British Columbia, Canada
Filed Aug. 8, 1968, Ser. No. 751,161
Claims priority, application Canada, Aug. 12, 1967, 997,672
Int. Cl. B25f *1/00*; B67b *7/44*
U.S. Cl. 7—14.6 **3 Claims**



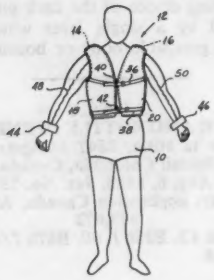
An opener for screw top lids having a handle and a head, the head having a substantially pear-shaped opening one side edge of which is smooth and the other of which is serrated so that the lid can be inserted into the opening and the opener turned relative to the lid so that the opener pivots about the region where the serrated edge contacts the lid to cause said serrated edge to grip the side of the lid.

3,570,029
COMBINATION BOAT SEAT AND GANGPLANK
Teddy J. Hunsaker, 8235 State Rte. 14, Streetsboro, Ohio 44240
Filed Sept. 22, 1969, Ser. No. 859,758
Int. Cl. B63b *29/04*
U.S. Cl. 9—7 **10 Claims**



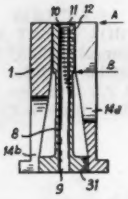
A combination boat seat and gangplank that features a series of telescoping sections that may be moved between open and closed position within a boat or other like object and further featuring a pivotal mounting that permits the entire unit to be swung around a pivot point and extended for use as a gangplank.

3,570,030
LIFE SAVING BUOYANCY SYSTEM
Edgar G. Baker, Carbondale, Pa., assignor to Gentex Corporation, New York, N.Y.
Filed Feb. 3, 1969, Ser. No. 795,839
Int. Cl. B63c *9/10*
U.S. Cl. 9—338 **18 Claims**



A life saving buoyancy system in which a buoyant mass located in the region of the chest of the wearer and separate and discrete buoyant masses in the wrist or forearm regions of the wearer are secured to the wearer's body so as to orient the body of a floating wearer from a face down, "dead dog" position to a face up, head out of the water position and to support him in that position. If desired, a buoyant mass may be positioned behind the wearer's head to ensure that his head is out of the water when in the face up position.

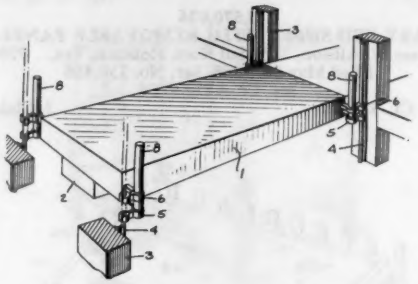
3,570,031
DIE, AND METHOD OF MANUFACTURING CALIBRATED RIVETS
Eloi Auriol, Flourens, Haute-Garonne, France, assignor to Ateliers de la Haute-Garonne ets Auriol & Cie
Filed May 25, 1967, Ser. No. 641,327
Claims priority, application France, May 27, 1966, 63,252
Int. Cl. B21k *1/58*
U.S. Cl. 10—24 **3 Claims**



A gun-shaped die for manufacturing rivets made of an elastic metal having at one end a slightly inwardly tapering flange member and at the other end a flange member approximately twice as great or greater in diameter than the inwardly tapering flange member. The portion of the gun-shaped die bounded between the two flange members has a thickness sufficient to withstand elastic deformations and generally the thickness of this portion will be approximately equal to the bore of the die.

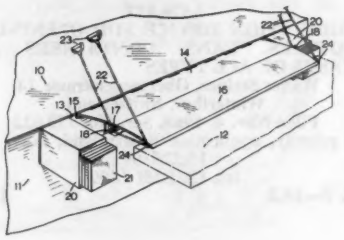
3,570,032
HIGH VERTICAL LIFT BRIDGE
Earle F. Allen, Plymouth, Mass., assignor to Valentine E. Macy, Jr., New York, N.Y., a fractional part interest
Filed Mar. 7, 1969, Ser. No. 806,044
Int. Cl. E01d *15/02*
U.S. Cl. 14—42 **5 Claims**

The invention is a vertical lift bridge which is raised utilizing hydraulically driven pistons. In order that the bridge may be raised to a substantial height, the hydraulic drive system is arranged to raise the bridge in a series of steps. Thus, each hydraulic drive motor operates on a vertical rail or channel using releasable gripping shoes



which permits the drive cylinder to be fully extended a number of times so that the bridge may be raised to a height equal to multiples of the stroke of the hydraulic drive motor.

3,570,033
DOCKBOARDS
Adrian P. Hovestad, 1044 Shepherds Drive, Burlington, Ontario, Canada, and John A. Merrick, 40 Oak Ave., R.R. 1, Dundas, Ontario, Canada
Filed Apr. 28, 1969, Ser. No. 819,607
Int. Cl. B65g *11/00*
U.S. Cl. 14—71 **10 Claims**

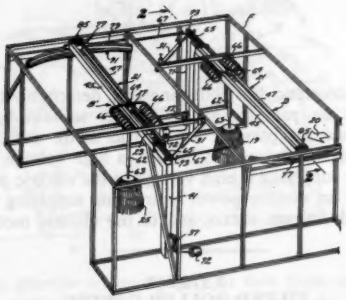


In a dockboard, especially dockboards of the "add-on" type the effort required for manual handling of the board is reduced by dividing the board longitudinally whereby the two parts are movable independently by their own manual handling means; alternatively or in addition the board is provided with a counterbalance spring comprising a torsion bar having two generally parallel portions connected to one another, such a spring giving the necessary counterbalance force over the relatively wide angle of movement required of the dockboard.

3,570,034
CAR WASHING APPARATUS
Henry J. Lanfrankie, Glendale, Calif., assignor to California Car Wash, Sun Valley, Calif.
Filed Feb. 26, 1969, Ser. No. 802,515
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 **12 Claims**

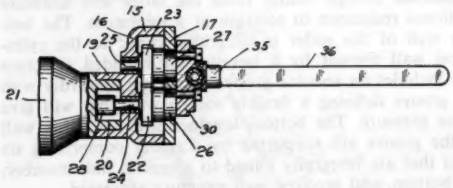
A car washing apparatus for washing a car as it passes along a predetermined path, such apparatus comprising

an overhead arm pivotally mounted at one side of the path and normally extending transversely thereover. The arm forms a track which mounts a carriage that suspends a rotary vertical brush. Means is provided for biasing the arm to its normal position projecting transversely of the path and control means is provided to pivot said arm from its neutral position to a rearward position. The carriage is biased to a normal position disposing said brush centrally in the path. Thus, an automobile moving forwardly along the path will contact the brush and swing



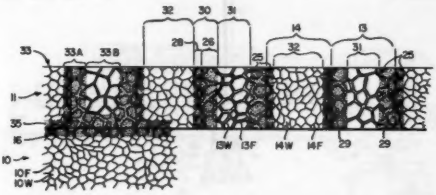
the arm forwardly and urge the brush outwardly along the track to the front corner of the automobile. The bias means will then swing the arm rearwardly moving the brush along the side of the car to the neutral position where the control means will effect further rearward movement thereof to the rear corner of the car and then the arm will commence forward movement and the brush will move inwardly along the rear of the car to its central position while the arm moves forwardly to its neutral position.

3,570,035
POWER OPERATED GUM MASSAGER AND TOOTH BRUSH
Forest H. Barnett, 625 S. Trafton, Tacoma, Wash. 98104
Filed June 24, 1969, Ser. No. 836,032
Int. Cl. A46b *13/00*
U.S. Cl. 15—22 **6 Claims**



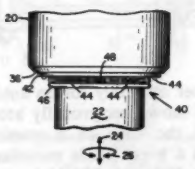
A brush member, composed of a shank having a tuft of bristles on its outer end, has its inner end secured on readily attachable and detachable means to a mounting plate at the front of a housing. Driven gear and crank members in the housing impart to the plate a distinctive movement which will move the tips of the bristles in a figure eight path. This makes it possible to apply the bristles to the gums and teeth in such a manner that movement of the bristles, when they are in contact with the gums and teeth, will be toward the outer ends of the teeth. This enables the user, at one operation to brush the teeth and to massage the gums by brushing then outwardly on the teeth and to avoid brushing the gums back on the teeth.

3,570,036
POLYURETHANE SPONGE SCRUBBER
James R. Gilchrist, Clarence, and Albert J. Assad, East Aurora, N.Y., assignors to Truly-Magic Products, Inc., Buffalo, N.Y.
Filed June 18, 1969, Ser. No. 834,411
Int. Cl. A47k *7/03*
U.S. Cl. 15—104.94 **10 Claims**



A scrubber in the form of a block of polyurethane sponge of intercommunicating open pore structure including at one surface, spaced elongated regions of such block which are rigidified compared to intermediate surface regions of such block which are not and hence are more resilient, thereby providing an effective scrubbing face, the block preferably being impregnated with a cleaning preparation containing an antibacterial agent to provide a surgical scrubber.

3,570,037
SHAFT WIPER
Robert M. Rood, 3225 Victoria Road, St. Paul, Minn. 55119
Filed Aug. 21, 1968, Ser. No. 754,248
Int. Cl. F16c *33/20*
U.S. Cl. 15—210 **3 Claims**

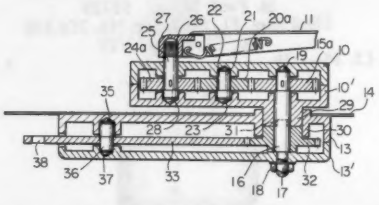


A wiper for use with a movable shaft, or quill, is adapted for axial movement within a supporting structure. The shaft wiper slideably surrounds and engages the movable shaft in a manner to wipe all contaminants and foreign particles therefrom for preventing the contaminants or particles from becoming lodged between the movable shaft and the mounting, thereby preventing the movable shaft from becoming lodged in the housing and unable to be moved. A circular structure having means for holding at least a portion of the wiper in contact with the movable shaft is shown. Various other embodiments of the shaft wiper are also shown.

3,570,038
BOTTLE BRUSH STRUCTURE
Vernon F. Jones, 1132 W. 124th St., Los Angeles, Calif. 90044
Continuation-in-part of abandoned application Ser. No. 728,576, May 13, 1968. This application Oct. 22, 1969, Ser. No. 871,461
Int. Cl. A47l *17/00*
U.S. Cl. 15—244 3 Claims

A bottle brush comprises a flexible spongy mass secured to an elongate handle by a length of wire penetrating through both stated elements in such manner as to produce uniform distribution of reaction loads during use of the brush.

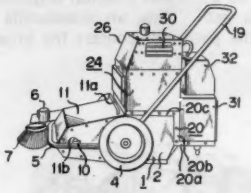
3,570,039
WINDSHIELD WIPER ASSEMBLY FOR AN AUTOMOBILE
Isamu Ichinose, 3–68–1 Oppamahigashi-cho, Yokosuka, Japan, and Yoichi Mori, 402 Baba-cho, Tsurumi-ku, Yokohama, Japan
Filed July 18, 1969, Ser. No. 843,023
Claims priority, application Japan, Dec. 30, 1968, 44/96,607
Int. Cl. A47l *1/00*; B60s *1/02*
U.S. Cl. 15—250.13 12 Claims



A windshield wiper assembly for an automobile having a wiper arm which moves reciprocally around a rotating center provided at the edge of a crank arm rotating around a point and a wiper blade mounted on the wiper arm for wiping a vehicle windshield in a movement following a trochoidal curve.

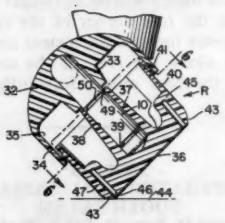
3,570,040
FLOOR AND GROUND CLEANER
Kiyomi Wada, Tokyo-to, Japan, assignor to Fuji Denki Kaden Kabushiki Kaisha, Tokyo-to, Japan
Filed Mar. 7, 1969, Ser. No. 805,222
Claims priority, application Japan, Mar. 8, 1968, 43/15,063
Int. Cl. A47l *9/10, 11/202*
U.S. Cl. 15—349 9 Claims

A novel and versatile cleaner is composed of a cleaner body movably supported on wheels, a rotating brush enclosed in a housing at the lower portion of the cleaner body and allowed to contact with the floor surface at least while the cleaner is operated, a dust box detachably mounted in the cleaner body for receiving dust stirred up from the floor by the brush operation, an air passage extending from the brush portion or the dust box to the outside of the cleaner body, an electric precipitator,



or, an electrostatic dust collecting unit, detachably mounted in the air passage, an air blower to introduce air through said air passage, an electric motor for driving the rotating brush and the blower, a high voltage power source for supplying a high voltage to the electric precipitator, and an electric power source for supplying power to the high voltage source and to the electric motor.

3,570,041
TILTED ROLLER CASTER
Jose Closa, Barcelona, Spain, assignor to Super Caster Corp., Miami, Fla.
Filed June 27, 1968, Ser. No. 740,658
Int. Cl. A47b *9/100*
U.S. Cl. 16—45 6 Claims

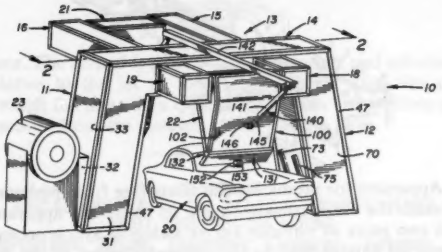


This specification discloses a caster in which a roller is rotatably mounted on an axis disposed at forty-five degrees to the vertical with the upper portion of the roller being rotatably received in a downwardly opening housing and provided with an outwardly extending flange in the zone of overlapping portions of the roller and housing to exclude foreign matter from the latter and maintain frictional resistance to rotation at a minimum. The bottom wall of the roller is integrally joined to the cylindrical wall thereof by a bevelled or rounded structure that includes an annular groove extending upwardly with the groove defining a flexible rolling wall that will give under pressure. The bottom together with the inner wall of the groove are supported by a spider comprising six webs that are integrally joined to a central hub member, the bottom, and grooved wall structure aforesaid.

3,570,042
DRYING APPARATUS FOR A CAR WASH
Fred D. Solomon, Akron, Ohio, assignor to Lanning Equipment Corp., Akron, Ohio
Filed May 6, 1968, Ser. No. 726,839
Int. Cl. F26b *19/00*
U.S. Cl. 15—316 16 Claims

A drying apparatus for an automatic car wash. This apparatus is supplied with forced air from a single source and comprises two, upright, side enclosures to which an

overhead assembly is connected to present an inverted U-shaped configuration. The side enclosures and the major portion of the overhead assembly are preferably made of a plastic material and include a system of internal baffle arrangements to provide ducting for the distribution of forced air therethrough from a single source. A plurality of uniquely constructed and arranged linear slot nozzles direct air from the upright side enclosures to dry the sides of a car by peeling the water therefrom, and two nozzles depend from the overhead assembly to dry the top of the car. While the slot nozzles in the side enclosures are preferably fixed, the two overhead slot nozzles are swingingly mounted on the overhead assembly

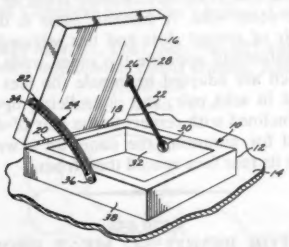


so as to provide an unimpeded air flow from one of the upright enclosures, through an enclosure in the overhead assembly and into the overhead nozzles. The overhead nozzles each have a head portion that articulates with respect to a body portion to assure that air emitted therefrom will sweep the water across and off the top of the car. The nozzles are also constructed so that air emitted therefrom tends to swing the nozzle away from the vehicle being dried so that it will not strike thereagainst. Retarding means counterbalance the rotative forces induced by the emitted air so that contact means on the nozzle ride lightly along the top of the vehicle to maintain the nozzle the desired spacing from the surfaces being dried thereby.

ERRATUM

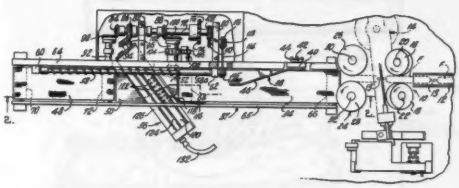
For Class 16—45 see:
Patent No. 3,570,041

3,570,043
SUPPORT COLUMNS
Giltner J. Knudson, 611 Cliff Drive, Newport Beach, Calif. 92660
Filed Jan. 27, 1969, Ser. No. 794,030
Int. Cl. B65d *43/24*; E05f *5/08*
U.S. Cl. 16—85 **11 Claims**



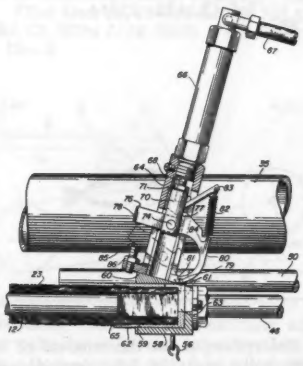
This invention relates to improvements in support columns of the kind which can stand compression but which will yield to lateral forces. Four embodiments in the form of hinge stops are illustrated in the drawings and described in the specification. In two of those embodiments, the column is formed by a coiled spring which extends to end members mounted on respective ones of a pair of hinged structures. The other two embodiments are also shown extending between end members each fixed to a respective one of a pair of hinge members but the stop is formed by an elongate member which is severed more than half but less than all the way through at spaced planes along its length so that one side of the member can withstand both compression and tension and the other side can withstand compression only.

3,570,044
SAUSAGE PEELING MACHINE
Charles S. Gartrell, Florham Park, N.J., assignor to Linker Machines Inc., Newark, N.J.
Filed Oct. 21, 1968, Ser. No. 769,061
Int. Cl. A22c *13/00*
U.S. Cl. 17—1 **9 Claims**



An apparatus for automatically transporting sausages, frankfurters and the like individually to a station whereby the casings thereof are stripped from the sausages by vacuum means. The transport chute is provided with at least one deflector plate which imparts rotational movement to the linear-moving sausages, and an helical feed screw is incorporated to assist in the transport of the sausages along said chute.

3,570,045
SHIRRED CASING ARTICLES, METHOD AND APPARATUS FOR MAKING SAME
Edward A. Matecki, Evergreen Park, Ill., assignor to Union Carbide Corporation
Original application Mar. 2, 1965, Ser. No. 436,584, now Patent No. 3,419,401, dated Dec. 31, 1968. Divided and this application Sept. 3, 1968, Ser. No. 810,045
Int. Cl. A22c *13/00*
U.S. Cl. 17—34 **3 Claims**

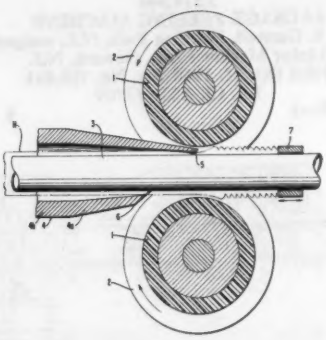


A device for making closed end hollow shirred meat casing sticks which comprises the combination of means for inturning at least a portion of the parent casing stick into the bore of said stick without deshirring any portion of said stick and means to compact and compress said material to anchor same into the bore.

3,570,046
APPARATUS FOR SHIRRING ARTIFICIAL SAUSAGE CASINGS

Hugo Bender, Wiesbaden-Erbenheim, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

Filed Dec. 26, 1968, Ser. No. 787,071
Claims priority, application Germany, Dec. 27, 1967, P 16 32 114.5
Int. Cl. A22c *13/00*
U.S. Cl. 17—42 **3 Claims**

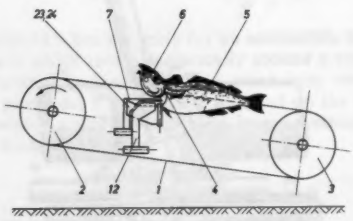


This invention relates to an apparatus for shirring sausage casing which comprises a mandrel, a movable abutment adapted to be contacted by the end of a shirred casing, a plurality of rotatable conveyor wheels mounted adjacent the mandrel and being adapted to engage a sausage casing, and a rotatable sleeve on the mandrel in front of the conveyor wheels, the sleeve having a tapered section adjacent the conveyor wheels and an oblique end.

3,570,047
METHOD FOR THE REMOVAL OF THE LIVER FROM THE BELLY CAVITY OF FISHES, IN PARTICULAR LEAN FISHES

Alfred Friedrich Adolf Bartels, Lubeck-Israelsdorf, Germany, assignor to Nordischer Maschinenbau Rud. Baader Lubeck, Germany

Filed Sept. 12, 1968, Ser. No. 759,290
Claims priority, application Germany, Sept. 19, 1967, P 16 54 998.7
Int. Cl. A22c *25/14*
U.S. Cl. 17—45 **5 Claims**

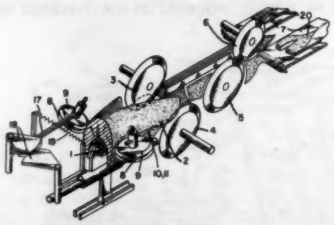


A method and apparatus for the removal of liver and gullet from the belly cavity of fishes include means engaging the liver lobes from behind, from the gill cavity, below the spine and on both sides of the gullet, whereupon the ligaments supporting the liver lobes are severed by stripping along the interior wall of the belly cavity. The gullet is clamped and torn out during the severance of the ligaments.

3,570,048
APPARATUS FOR PRODUCING FISH FILLETS FREE FROM PINBONES

Johannes Michael, Harmsdorf via Ratzeburg, Germany, assignor to Nordischer Maschinenbau Rud. Baader, Lubeck, Germany

Continuation of application Ser. No. 623,488, Feb. 14, 1967, which is a division of application Ser. No. 449,842, Apr. 21, 1965, now Patent No. 3,319,287, dated May 16, 1967. This application Aug. 5, 1969, Ser. No. 863,405
Int. Cl. A22c *25/16*
U.S. Cl. 17—56 **2 Claims**



Apparatus for producing fish fillets free from pinbones, wherein the fish is straddled upon its belly. The apparatus has two pairs of circular knives swinging synchronously about an axis parallel to the symmetry plane of the fish and actuated to cut into the sides of fish in the region of the belly cavity of the fish and to be withdrawn in the region of the tail end of the fish.

3,570,049
SMALL GAME SKINNING BOARD

Clyde E. Muckelrath, Rte. 2, Box 178, Newellton, La. 71357

Filed June 16, 1969, Ser. No. 833,351
Int. Cl. A22c *15/00*
U.S. Cl. 17—44.2 **8 Claims**

The skinning board for animals includes a panel having a neck-receiving slot extending downwardly from its upper edge adjacent one side, and also a pair of spaced feet-receiving slots extending downwardly from its upper edge adjacent the other side. A metallic plate is disposed behind the pair of spaced slots and has serrated side edges disposed substantialy opposite the outer walls of the pair of slots which are adapted to impale the feet of the animal engaged in said pair, the plate being upwardly and rearwardly inclined with respect to the pair of slots. Means are provided for mounting the panel on a wall or other support with its rear face spaced therefrom.

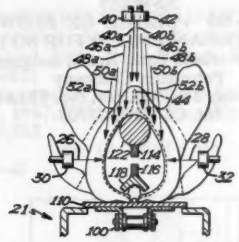
3,570,050
PROCESS FOR REMOVING MEAT FROM BONES

James E. Draper and Jack J. Rejsa, Minneapolis, Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Mar. 26, 1968, Ser. No. 716,138
Int. Cl. A22c *17/04*
U.S. Cl. 17—46 **13 Claims**

A process for removing meat from bones of animals, e.g. chickens, in which a nozzle is used to form a jet of a

liquid (water or other liquid) having the form of a relatively thin sheet composed of several aligned parallel streams. The jet is directed at the animal preferably at a relatively small angle of incidence to the surface of the

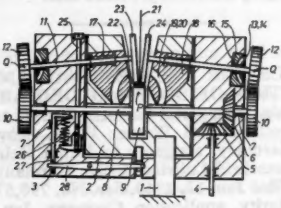


bone. The animal is placed upon a conveyor and advanced relative to the jet to form an elongated knife-like cut through the meat. In a typical application breast fillets are removed from the sternum (keel) and rib cage.

3,570,051
APPARATUS FOR BIAXIALLY STRETCHING FOIL SHEETS OR WEBS

Hieronymus Zygan, Odenthal, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed July 3, 1968, Ser. No. 742,310
Claims priority, application Germany, July 4, 1967, F 52,851
Int. Cl. B29b *3/00*; B29c *15/00*; B29d *7/14*
U.S. Cl. 18—1 **4 Claims**

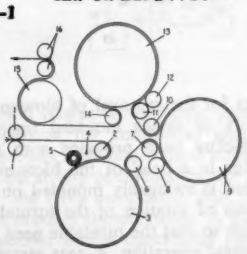


An apparatus for biaxially stretching continuous web materials is disclosed wherein there is employed a plurality of holding devices having means to simultaneously and independently adjust the width of gaps in the holding devices necessary to permit passage therebetween of both a marginally reinforced portion and a foil portion of the web material.

3,570,052
FILM TREATMENT

Grahame Melvin Reade, Harpenden, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Mar. 31, 1967, Ser. No. 627,449
Claims priority, application Great Britain, Apr. 15, 1966, 16,602/66
Int. Cl. B29d *7/14*
U.S. Cl. 18—1 **17 Claims**

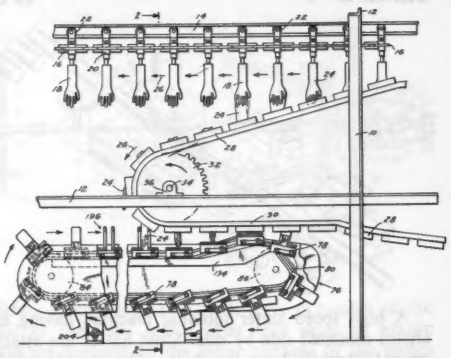


Heat-treating oriented film by feeding it to at least one matt surfaced rotating roll which is maintained at a temperature at which the film will shrink but below the melting point of the film and forcing the film against the roll while uniformly spreading it out on the roll.

3,570,053
CUFF FOLDER MECHANISM

Anthony F. Rodrigues, Los Gatos, and Richard A. Wilkinson, San Jose, Calif., assignors to Becton, Dickinson of California, Inc., Los Gatos, Calif.

Filed Sept. 23, 1968, Ser. No. 761,458
Int. Cl. B29h *3/044*; B29c *13/04*
U.S. Cl. 18—2 **17 Claims**

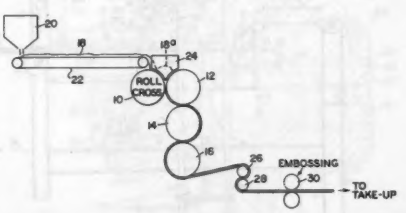


A folding mechanism operatively associated and travelling in timed relation with a stripping unit capable both of stripping a glove from a casting mold and retaining the same by gripping means mounted by the stripping unit to grip the open wrist end of the glove. The folding mechanism including a pair of upstanding parallel mandrels relatively movable to varying their spaced relation and movable in a direction toward the gripping means to receive the glove from the latter and at the same time with continued movement to fold the open end about the mandrel as the glove is being released.

3,570,054
AUTOMATICALLY ADJUSTABLE END GUIDES FOR CALENDER ROLLS

Rex C. Seanor and Charles G. Lake, Akron, Ohio, assignors to Adamson United Company, Akron, Ohio

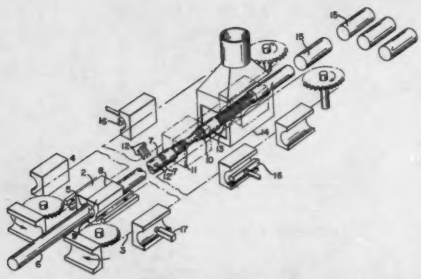
Filed Dec. 31, 1968, Ser. No. 788,139
Int. Cl. B29d *7/14*; B29h *3/00*; B30b *3/04*
U.S. Cl. 18—2 **12 Claims**



The disclosure relates to automatically adjustable end guides for calender rolls, and is particularly adapted for end guide adjustment for rolls which may be adapted to change relative position because of roll crossing techniques. The automatic guide adjustment is achieved by use of a slave bar associated with adjustable journals carrying the calender rolls. The slave bar is connected through appropriate linkage to the guides which are adjustably mounted to follow the slave bar and maintain close spaced proximity with respect to the rolls without actually touching the rolls

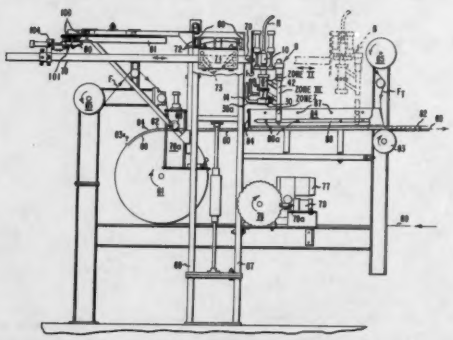
to cause scoring. The specifics of the adjustable mounting include a spring loading to urge each guide to a predetermined position, and sliding adjustability on at least two points within the surface of the guide on a radius with respect to one of the rolls.

3,570,055
HIGH SPEED SINTER MOLDING MACHINE
Paul M. Erlandson, Palos Park, and Richard R. Szatkowski, Western Springs, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Jan. 10, 1969, Ser. No. 790,283
Int. Cl. B29c *1/14, 3/06, 5/02*
U.S. Cl. 18—4 **10 Claims**



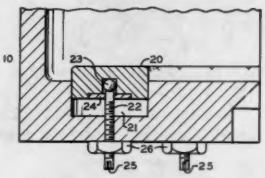
A high speed sinter molding machine having endless chains mounted side by side. Mold halves are attached at spaced intervals down the chains. The paired mold halves come next to each other to form a female mold into which is deposited a polymeric material. A mandrel extends inside the mold and as the mold traverses its path, it surrounds the mandrel and the mandrel deposits polymeric powder, heats the polymeric powder, and then cools it. At the end of the mold path, the finished article is ejected and is ready for the next operation.

3,570,056
MULTI-COLORED PLASTIC BUILDING PRODUCT AND ITS MANUFACTURE
Nelson Lee Hall, Williamsville, N.Y., and Donald Hillman Slocum, Moorestown, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed July 24, 1969, Ser. No. 844,509
Int. Cl. B29c *9/00*; B29f *1/02, 1/12*
U.S. Cl. 18—4 **8 Claims**



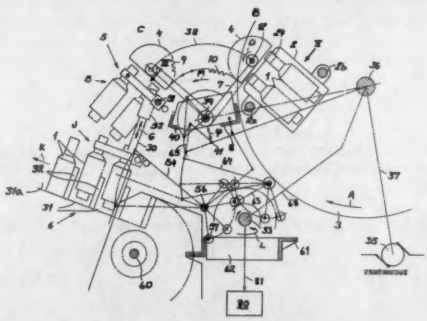
A multi-colored cast plastic building product of uniformity and strength including a mass of polymeric material having distributed and suspended therein at least one smaller elongated continuous pattern of a different colored polymeric material in a predetermined reproducible three dimensional configuration and a manufacturing arrangement for producing the same so that the polymeric materials are substantially equally matched as to degree of polymerization at the time of being cast to give uniformity of all properties except color in the final product.

3,570,057
ADJUSTMENT OF VOLUME OF BLOW MOLDED CONTAINERS AND MOLD FOR SO DOING
Robert Doyle, Overland Park, Kans., assignor to Phillips Petroleum Company
Filed May 24, 1968, Ser. No. 731,814
Int. Cl. B29d *23/03*
U.S. Cl. 18—5 **6 Claims**



The bottom of a mold is provided with means permitting the container bottom to be molded to different contours or shapes or concavities by providing a removable and replaceable or interchangeable bottom or mold insert which can be varied. The insert also serves as the pinch off. A disc-shaped or annular-shaped insert, which can be made adjustable so the small volume changes can be made without changing inserts, is provided also.

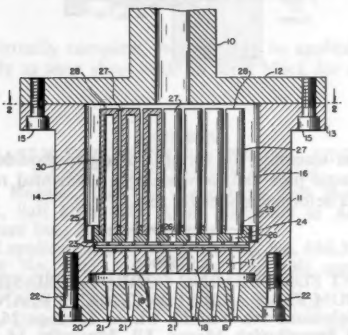
3,570,058
APPARATUS FOR THE REMOVAL AND TRANSPORTATION OF BLOW-MOLDED ARTICLES
Anton Heinig, Wuppertal-Barmen, Kurt Lasch, Hilgen, near Burscheid, and Werner Weck, Schwelm, Westphalia, Germany, assignors to Firma Heinig & Leonhardt, Remscheid-Luttringhausen, Germany
Filed Jan. 13, 1969, Ser. No. 790,576
Claims priority, application Germany, Jan. 12, 1968, P 15 56 570.5
Int. Cl. B29d *23/03*
U.S. Cl. 18—5 **12 Claims**



An apparatus for the removal of blow-molded articles from a plurality of molds mounted upon a turntable which has a pickup head provided with a barbed pin adapted to lodge in a head of the blow-molded article. The pickup head is swingably mounted on an arm centered on the axis of rotation of the turntable and is entrained therewith so that the turntable need not be halted during the removal operation. A gear sector on the head cooperates with a further gear sector to swing the head about its axis and deliver the articles to a gripper which

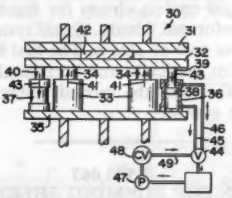
strips them from the head and advances them to a transport mechanism carrying the articles away from the turntable.

3,570,059
SPINNERETTE HEAD FILTER
Lambert H. Mott, % Mott Metallurgical Corp., Farmington Industrial Park, P.O. Drawer "L," Farmington, Conn. 06032
Continuation-in-part of application Ser. No. 676,316, Oct. 18, 1967. This application July 24, 1969, Ser. No. 847,802
Int. Cl. D01d *3/00*
U.S. Cl. 18—8 5 Claims



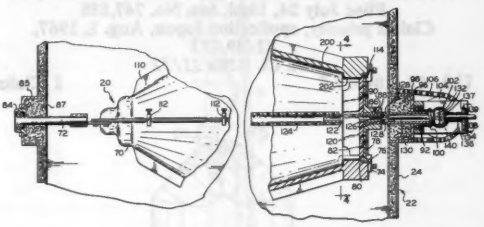
The central cavity of a spinnerette head assembly for the extrusion of synthetic polymer fibers is substantially filled with tubular filters closed at one end and communicating with extrusion orifices, the filter area presented to inflowing plastic being at least twice the cross-sectional area of the central cavity.

3,570,060
GAUGE CONTROL FOR PRODUCTS FROM PRESSES
Daniel W. Stephenson, Cuyahoga Falls, Ohio, assignor to Adamson United Company, Akron, Ohio
Filed May 6, 1969, Ser. No. 822,269
Int. Cl. B30b *11/00, 15/16*
U.S. Cl. 18—16 5 Claims



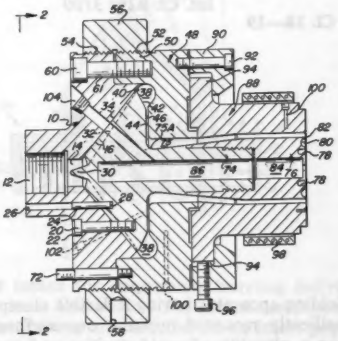
This invention relates to hydraulic presses and particularly to apparatus for controlling gauge of products produced in presses including a fixed bolster, and a movable bolster operatively positioned in the press frame for movement to and from association with the fixed bolster for forming a product therebetween. A pair of hydraulic piston and cylinder means operatively connect the movable bolster and the frame at corresponding positions adjacent each end of the movable bolster whereby pressures exerted by such piston and cylinder means can bend end portions of the movable bolster reversely to any bending action created therein by pressure closing action of the movable bolster whereby the gauge of the product produced between the bolsters can be controlled.

3,570,061
MOLDING APPARATUS
Alvadore M. Andrews, 4621 SW. Beaverton-Hillsdale Highway, Portland, Oreg. 97221
Filed Dec. 4, 1968, Ser. No. 780,970
Int. Cl. B29c *5/04*
U.S. Cl. 18—26 5 Claims



Molding apparatus and methods serve to tumble plastic material in shell-like molds after thin skins of plastic material are sprayed on the inner surfaces of the molds and while the molds are rotated in ovens turning the molds on axes at right angles to the axes of rotation of the molds. Paddles in the molds wipe the inner surfaces of end portions of globes being formed from the plastic material to smooth these inner surfaces. Cooling sprays cool the molds and the globes molded therein.

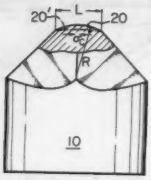
3,570,062
MIDSTREAM RADIAL VALVE FOR IN-LINE EXTRUSION OF VISCOUS THERMOPLASTICS
Andrew Anthony Dukert, Ambler, and Alkis Christofas, Philadelphia, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.
Filed Feb. 14, 1969, Ser. No. 799,223
Int. Cl. B29d *23/04*
U.S. Cl. 18—14 8 Claims



An in-line valving die for extruding viscous thermoplastics. Outwardly diverging semi-circular channels first direct the material from the extruder in a continuous stream of sheet-like configuration, which is deposited in a high-inventory, annular cavity. The material then passes

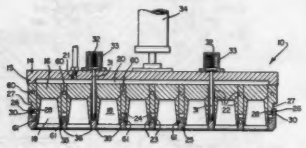
radially inward through an adjusable disk valve into a centrally disposed relaxation reservoir to allow for recovery from the uniform shearing action of the valve prior to final shaping in the forming die. All increments of the material advance with equal back pressure to deliver well converted melts without surface defects or internal stresses.

3,570,063
ANVIL FOR USE IN A HIGH PRESSURE APPARATUS
Kazuo Yasunami, Ashiya-shi, Japan, assignor to Kobe Steel Ltd., Wakinohama-cho, Fukiai-ku, Kobe, Japan
Filed July 24, 1968, Ser. No. 747,188
Claims priority, application Japan, Aug. 1, 1967, 42/49,033
Int. Cl. B30b *11/32*
U.S. Cl. 18—16.5 **1 Claim**



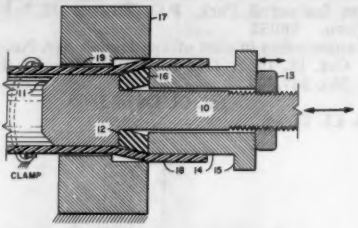
The top surface of an anvil utilized in a high pressure apparatus is made to form a convexed curved surface so as to avoid any breakage due to being sheared off by utilizing a compression force generated in the anvil by applying a pressure to the top surface. A high ratio of the actual pressure to be generated in the center of the substance to be pressurized to the mean pressure to be applied to the top surface is obtained by using the anvil.

3,570,064
MOLDING APPARATUS HAVING A FLEXIBLE CLAMP PLATE
Hans de Groot, Philadelphia, Pa., assignor to Scott Paper Company, Delaware County, Pa.
Filed Aug. 13, 1968, Ser. No. 752,324
Int. Cl. B29c *3/00*
U.S. Cl. 18—19 **17 Claims**



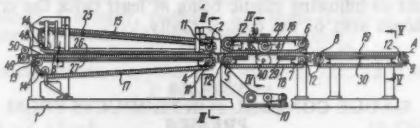
Molding apparatus having a flexible clamp plate which is resiliently mounted opposite one surface of a mold having a plurality of mold cavities and supported at a plurality of closely spaced points. The flexible clamp plate is arranged for relative movement toward and away from the mold so as to press a web of moldable material against a clamping surface about the periphery of each of the mold cavities between intermittent advancing movements of the web of moldable material between the mold and the clamp plate.

3,570,065
PIPE BELLING
Fernando V. Guerrero, Chagrin Falls, Ohio, assignor to Continental Oil Company, Ponca City, Okla.
Filed Mar. 21, 1968, Ser. No. 715,067
Int. Cl. B29c *17/02*
U.S. Cl. 18—19 **4 Claims**



A ram assembly for forming a square-shouldered bell on a plastic pipe end, comprising a segmented ram containing a deformable annular ring.

3,570,066
PLANT FOR FORMING CORRUGATED SHEETS FROM FLAT ASBESTOS-CEMENT BLANKS
Mark Solomonovich Neifeld, Ul. A. Tolstogo 26, kv. 20; Pavel Samuilovich Moroz, Ul. Mnevniki 14, kv. 65; Oleg Alexandrovich Morgunov, Jugo-Zapad, kvartal 38, korp. 165, kv. 43; and Savely Aronovich Monastyrenko, Proezd Rusanova 27, korp. 2, kv. 33, all of Moscow, U.S.S.R.
Filed June 19, 1968, Ser. No. 738,348
Int. Cl. B29c *17/02*
U.S. Cl. 18—19 **8 Claims**

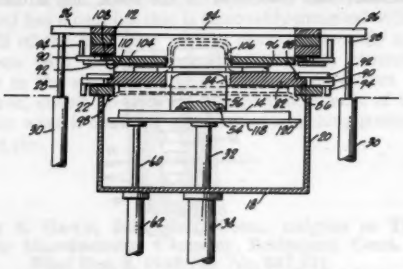


Apparatus for forming corrugated sheets from flat asbestos-cement blanks is provided with a first system of endless chains for preforming the flat blanks, and a second system of endless chains for finishing the formation of the preformed blanks. Each system includes an upper and lower row of chains. The first system of upper and lower chains vertically and horizontally converge toward one another and the second system of chains are parallel to one another.

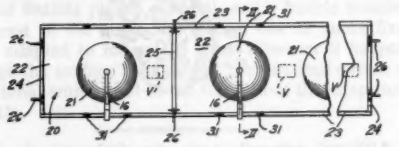
3,570,067
APPARATUS FOR FORMING SHEET MATERIAL
Robert M. Jones, Fullerton, and Howard G. Nourse, Palos Verdes, Calif., assignors to McDonnell Douglas Corporation
Filed May 29, 1968, Ser. No. 733,016
Int. Cl. B29c *17/00*
U.S. Cl. 18—19 **15 Claims**

Upright airtight chamber with open upper end houses vertically moving platen carrying form block. First draw ring mounted on rim of chamber with aperture corresponding to form block. Second draw ring with corresponding aperture above first ring and movable up and down to load and slidably grip heat-softened sheet of thermoplastic material between rings. Form block passes

up through apertures to flow-form sheet. Pressure and vacuum means to blow-form sheet up or down into dome shape before form block is actuated. When forming is virtually complete, vacuum may be applied instantaneously to snap sheet back on form block for accurate shaping.

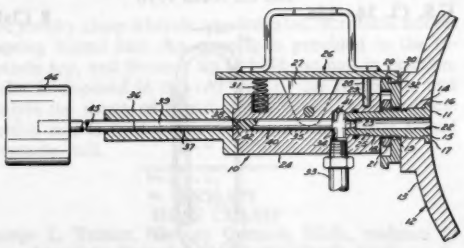


3,570,068
APPARATUS FOR MANUFACTURING SINK AND VANITY TOP COMBINATIONS
Kay L. Ruggles, Dale B. Gunnerson, and Howard S. Clark, Salt Lake City, Utah, assignors to American Standard Inc., New York, N.Y.
Original application Dec. 30, 1966, Ser. No. 606,324, now Patent No. 3,433,860. Divided and this application Jan. 21, 1969, Ser. No. 872,780
Int. Cl. B29c *1/14, 5/00;* B22c *9/22*
U.S. Cl. 18—26 **10 Claims**



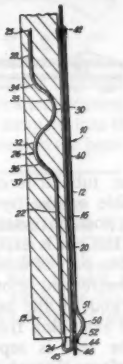
This disclosure relates to apparatus for the manufacture of integral sink and vanity top combinations of a thermosetting synthetic plastic composition, preferably of a polyester resin type, wherein, the bowl area is integrally formed with the vanity top area, and wherein the bowl area is provided with an overflow tube that is embedded within the material of the side wall of the bowl.

3,570,069
APPARATUS FOR INJECTING MOLDABLE MATERIAL INTO A MOLD
Arthur J. Wiltshire, Cleveland, Ohio, assignor to Structural Fibers, Inc., Chardon, Ohio
Filed July 11, 1968, Ser. No. 744,042
Int. Cl. B29f *1/00*
U.S. Cl. 18—30 **5 Claims**



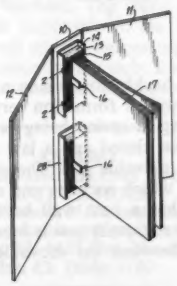
Apparatus for connecting a source of resinous material to be molded to an inlet fitting on a mold and for inserting a plug in the fitting before the source of resinous material is disconnected from the fitting. The connecting and plug-inserting device includes a block having a resin inlet port which is connected to a source of resinous material, a resin outlet port which is connected to the mold fitting, and a passageway for guiding a plug through the resin outlet port and into the inlet fitting to block the inlet fitting after a measured amount of resin is delivered to the mold cavity.

3,570,070
CORSAGE PIN
Robert H. Rose, 109 Vassar Road, Poughkeepsie, N.Y. 12603
Filed Sept. 11, 1969, Ser. No. 857,040
Int. Cl. A45f *5/08*
U.S. Cl. 24—6 **10 Claims**



A pin for a corsage or the like which includes a body portion and a pair of arms each connected by a loop to opposite ends of the body portion and having a point on the free end thereof which is adapted to pierce the stem of the corsage and the clothing of the user, respectively. Retaining means is provided on one of said arms to provide lateral support to the arm and a gripping action on the stem to prevent its easy removal from the corsage.

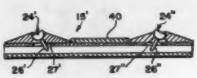
3,570,071
FASTENER MEANS FOR LOOSE LEAF HOLDERS
Dwight L. Wardell, Brooklyn, N.Y. (2 Harmony Lane, Denville, N.J. 07834)
Filed Jan. 17, 1969, Ser. No. 792,060
Int. Cl. B42f *1/00*
U.S. Cl. 24—67 **4 Claims**



A fastener means for temporarily inserting individual leaves into a loose leaf holder. The means comprises (1) a leaf or insert having attached thereto an insert gripping means along at least a portion of one edge, (2) an attachment pin in the shape of a T anchored by its crossbar in the free end of the insert means and with its central shaft extending out from the insert means, (3) a backing means adapted to permit penetration of its resilient surface by the central shaft of the T-shaped attachment pin. The central shaft of the attachment pin may be angularly distorted to enable it to be more firmly retained within

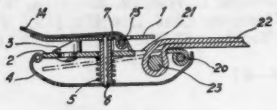
the grasp of the resilient surface which it penetrates. The fastener means binds the leaf into a holder formed by the joinder of the front and back rectangular covers with the backing means. The backing means may be covered on its interior face with a fine wire mesh screen to assist in the fixation of the attachment pins to the backing means.

3,570,072
FINGER TIP CONTROL BELT BUCKLES
Samuel Webb, 1246 42nd St., Brooklyn, N.Y. 11219
Filed July 10, 1969, Ser. No. 840,615
Int. Cl. A44b *11/00*
U.S. Cl. 24—74 **11 Claims**



Substantially flat tubular-form buckle body has a headed pin swingable on the front wall in a horizontal plane, and in one position extends straight to the rear wall. The head of the pin is exposed at the front of the buckle, is mounted as part of a ball joint, and is manipulated by finger tip movement to bring the pin into and out of a hole in the end of the belt whose other end is mounted on a bail extending from the buckle body. As a modification, the belt is separate, both ends have holes, and both surfaces thereof are finished. The buckle therefor has two spaced headed pin units, each to deal with one belt end. With such construction, the belt is reversible.

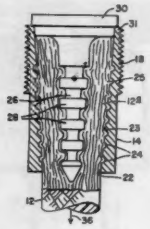
3,570,073
SAFETY BELT BUCKLE
Pierre Cibie, Paris, France, assignor to Projecteurs Cibie and E.F.A. Etudes et Fabrications Aeronautiques
Filed Mar. 4, 1969, Ser. No. 804,134
Int. Cl. A44b *11/25, 17/00*
U.S. Cl. 24—77 **6 Claims**



A safety belt buckle comprising a stationary jaw and a movable jaw with a formation serving to permit connection of a strap, a spring being provided between the jaws to hold them closed and a jaw opening lever being mounted on the movable jaw. The stationary jaw forms part of a casing which encloses and mounts the movable jaw and which has a base wall between which and the movable jaw the stationary jaw is mounted and the spring being disposed between the movable jaw and the base wall.

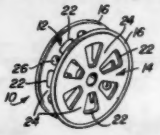
3,570,074
ROPE END FITTING
Werner K. Schimmeyer, Sunnyvale, Calif., and Paul G. Bettinger, Spokane, Wash., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Nov. 12, 1968, Ser. No. 774,937
Int. Cl. F16g *11/05*
U.S. Cl. 24—123 **2 Claims**

An improved rope end fitting structure, attached to the end portion of a rope for assuming the tensile load on the rope in use, comprises a tubular sleeve having a convoluted frusto-conical inner surface encompassing an end portion of the rope and filled with a potting resin. The rope end portion is frayed or unraveled and splayed to a larger diameter and embedded in the resin, and a convoluted



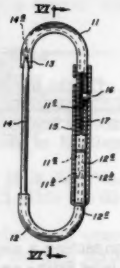
tapering pin is inserted in the end of the rope, thereby providing an arrangement in which the sleeve and the embedded rope end have a maximum tensile strength at least equal to the maximum tensile strength of the rope.

3,570,075
CIRCULAR CLOTHESPIN
Charles R. Louderback, 8112 W. Morgan Ave., Milwaukee, Wis. 53220
Filed Mar. 3, 1969, Ser. No. 803,578
Int. Cl. D06f *55/00*
U.S. Cl. 24—137 **5 Claims**



Although primarily a circular clothespin, the disclosed invention is capable of reliable use for mounting side-by-side clotheslines atop T-shaped outdoor line supports. It is also usable as a Christmas tree ornament and as a component in a toy erection set for children. It comprises a one-piece plastic spool and embodies opposed plastic disks united by a hollow hub. These disks are made of resilient plastic material and are provided with radial spokes and internal bosses which provide line positioning and retaining detents.

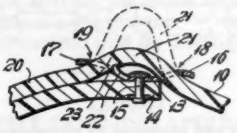
3,570,076
SAFETY PIN
Robert W. Wagner, 1102 Lowenhill St., Pittsburgh, Pa. 15216
Filed July 15, 1969, Ser. No. 841,855
Int. Cl. A44b *9/10*
U.S. Cl. 24—156 **8 Claims**



A safety pin device is provided having a rotatably-operated sleeve part, a base or upper loop part that securely-carries a pin part to project forwardly therefrom,

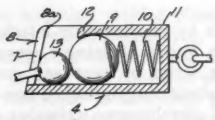
and a nose or upper loop part that is adapted to latch-receive a pointed end of the pin and to be angularly-swung into and out of an axially-aligned positioning with respect to the pin. A spring part is carried within the loop parts and has a cam lug that is removably-mounted within the wall of the nose loop part to project outwardly and cooperate with a closed-end, spirally-slotted, camming portion in the sleeve part to, by rotative movement of the sleeve, enable an outward swinging movement of the nose part when it has been raised out of a latching position with the pin.

3,570,077
BUCKLES
Gabriel S. Hawie, Bridgeport, Conn., assignor to The Hawie Manufacturing Company, Bridgeport, Conn.
Filed Dec. 8, 1969, Ser. No. 882,921
Int. Cl. A44b *11/04*
U.S. Cl. 24—164 **1 Claim**



There is disclosed an insecticide collar particularly for small animals comprising an imperforate strap of impregnated flexible plastic material, and a buckle attached to one end of the strap and having one or more fixed tongues adapted to indent the strap wherever it happens to engage the surface thereof and prevent inadvertent or unintentional withdrawal of the free end of the strap from the buckle.

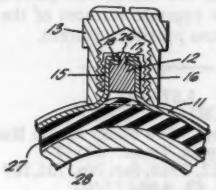
3,570,078
JEWELRY CLASP
Harry A. Neumann and Oliver C. Sauré, Indianapolis, Ind., assignors to Frank S. Andrus, Whitefish Bay, Wis., a fractional part interest
Filed Feb. 5, 1969, Ser. No. 796,773
Int. Cl. A44b *17/00*
U.S. Cl. 24—201 **2 Claims**



A jewelry clasp wherein an elongated receptacle houses a spring biased ball. An opening is provided in the receptacle top, and forms a lip to hold the ball in position. A slot is disposed in the end wall of the receptacle and receives the shank of a ball which enters the receptacle opening and is held within the receptacle by the biased receptacle ball.

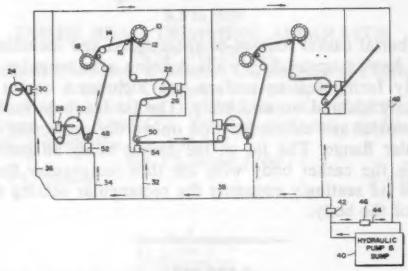
3,570,079
HOSE CLAMP
George L. Turner, Hickory Corners, Mich., assignor to American Stamping Co., Battle Creek, Mich.
Filed May 15, 1969, Ser. No. 824,961
Int. Cl. B65d *63/02*
U.S. Cl. 24—278 **12 Claims**

This hose clamp is of a type to be made in various fixed sizes to fit and clamp various specific diameters of hose or the like. The ends of the hose clamp strap overlap each other and are fixedly held in that relative position in various ways on an externally threaded, side grooved, floating nut. That nut in turn engages the threads in an internally threaded nut, so that with the floating nut and its anchored clamp strap mounted in place on the



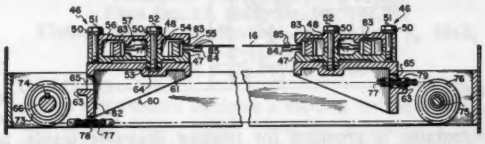
piece of hose which is to be gripped on a male member, the rotation of the internally threaded nut in engagement with the externally threaded floating nut will pull the two end portions of the strap up into the internally threaded nut and tighten the strap on the hose.

3,570,080
CLOTH SHEARING MACHINE WITH AUTOMATIC TENSION CONTROL
William J. Holm, Springfield, Vt., assignor to Riggs & Lombard, Inc., Lowell, Mass.
Filed Jan. 23, 1969, Ser. No. 793,400
Int. Cl. D06c *13/00*
U.S. Cl. 26—15 **1 Claim**



A cloth shearing machine is provided with a self-compensating tension control system to maintain a constant and uniform tension on a running cloth web as it passes through the machine. The speed of independently driven draft rolls is responsive to the movement of an associated sensing roll which engages the web and moves upon changes in tension of the web. Each sensing roller is operatively connected to a draft roll to control its speed of operation.

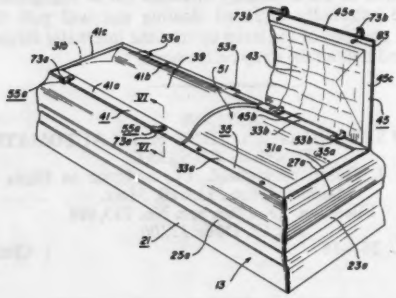
3,570,081
APPARATUS FOR HANDLING AND TREATING KNIT FABRICS
Frank Catallo, Elmont, N.Y., assignor to Fab-Con Machinery Development Corp., Peterson, N.J.
Filed Aug. 22, 1967, Ser. No. 662,450
Int. Cl. D06c *3/02*
U.S. Cl. 26—61 **6 Claims**



Apparatus for handling and treating fabrics, particularly open width knit fabrics, by means of suitable supports, conveying devices and controls, including an adjust-

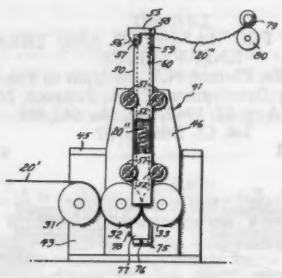
able and flexible over and under pin tentering chain arrangement for effecting rapid spreading of the fabric and for conveying the fabric in a geometrically correct condition through a substantially closed zone at a controlled temperature with a plurality of streams of a gaseous medium flowing in a general direction which is opposite the path of movement of the fabric, the gaseous medium being directed against opposite surfaces of the fabric by means of nozzles in close proximity thereto.

3,570,082
BURIAL CASKET
Leslie G. Gruber, 4530 Shady Grove Road, Memphis, Tenn. 38117
Filed May 22, 1968, Ser. No. 731,109
Int. Cl. A01g *17/02*
U.S. Cl. 27—6 **3 Claims**



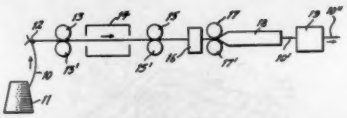
A burial casket formed of sheet metal and including a body having upstanding walls defining a rectangular upwardly facing seating surface and includes a casket lid hingedly secured on said body. The lid being formed of sheet metal and defining a thin outwardly projecting rectangular flange. The lid of the casket being adapted to overlie the casket body with the thin rectangular flange of the lid seatingly engaging the rectangular seating surface of the body.

3,570,083
STRAND-TREATING APPARATUS
Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation, Kennett Square, Pa.
Continuation-in-part of application Ser. No. 678,428, Oct. 26, 1967. This application May 7, 1969, Ser. No. 822,429
The portion of the term of the patent subsequent to Apr. 9, 1985, has been disclaimed
Int. Cl. D02g *1/12*
U.S. Cl. 28—1.6 **22 Claims**



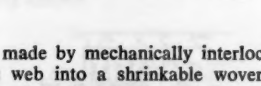
Apparatus is provided for treating drawable textile strands, including means for drawing the same to increased length and means for compressively crimping the drawn material, arranged for operation in essentially continuous manner with a minimum of time and space therebetween. In the extreme the drawing and crimping means are arranged to provide contiguous drawing and crimping zones. Preferably the means for forwarding the drawn strand out of the drawing zone and the means for feeding the strand into the crimping zone are adapted to underfeed the strand from the first to the second.

3,570,084
STRAND TREATMENT
Robert K. Stanley, 620 Meadowvale Lane, Media, Pa. 19063, and Malcolm F. Irwin, 1303 Sherwood Drive, West Chester, Pa. 19380
Continuation-in-part of application Ser. No. 688,119, Dec. 5, 1967. This application Apr. 11, 1969, Ser. No. 815,425
Int. Cl. D02g *1/12*
U.S. Cl. 28—72.14 **15 Claims**



Textile strands are subjected to successive compressive crimping steps, as in successive stuffer crimpers, at essentially constant, though different, infeed and withdrawal or windup rates. Control tension is applied between such successive steps and optionally after the last such step.

3,570,085
METHOD OF FORMING A REINFORCED FABRIC BY A COMPRESSIVE SHRINKING OPERATION
Frederick E. Heinemann, Canton, Mass., assignor to W. R. Grace & Co., Cambridge, Mass.
Continuation-in-part of abandoned application Ser. No. 401,268, Oct. 2, 1964. This application Oct. 15, 1968, Ser. No. 767,649
Int. Cl. D04h *1/50*
U.S. Cl. 28—72.2 **5 Claims**

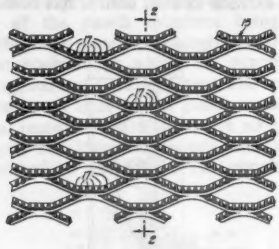


A fabric is made by mechanically interlocking a non-woven fibrous web into a shrinkable woven scrim and then shrinking the scrim by heat and compression to contract the scrim about the interlocked non-woven fibers. The shrinking and simultaneous crimping of the scrim produces a soft and somewhat extensible felt-like fabric.

3,570,086
METHODS AND MACHINES FOR MANUFACTURE OF EXPANDED METAL
Mark M. Stone, Highland Park, Ill., assignor to Metalex Corporation, Libertyville, Ill.
Continuation-in-part of abandoned application Ser. No. 676,531, Oct. 19, 1967. This application Apr. 21, 1969, Ser. No. 825,098
Int. Cl. B21d *31/04*
U.S. Cl. 29—6.2 **14 Claims**

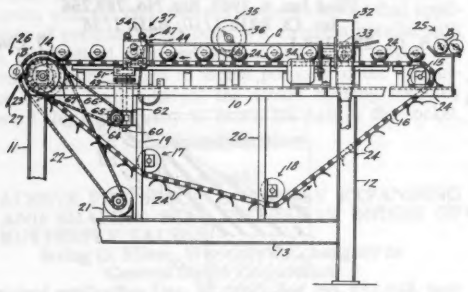
Methods and machines are disclosed for manufacturing an expanded metal product having a roughened or serrated surface portion adapting the product for use as a non-skid safety walkway or the like. A multi-toothed punching die is reciprocated in a vertical plane with its vertical interior face closely adjacent the vertically oriented die face of an expanding ledge. Sheet metal is ad-

vanced along a horizontal bed toward the ledge in timed relation to reciprocation of the punching die which die is also shifted laterally between successive downward strokes to establish the offset aperture pattern of expanded metal.



One and only one of the opposed vertical faces of the dies is provided with serrating die means while the other die face is preferably of a planar contour or otherwise formed so as not to interregister with the serrating die.

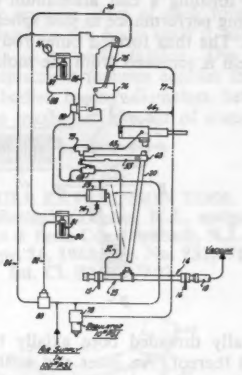
3,570,087
BOTTLE TRIMMING APPARATUS
Robert J. Palsa, 6133 Acoma Drive, Toledo, Ohio 43623
Filed Jan. 27, 1969, Ser. No. 793,968
Int. Cl. B23q *7/04*
U.S. Cl. 29—33 **10 Claims**



A device for trimming molded plastic articles carried by a continuously moving conveyor, which device includes a mechanism for reciprocating a trimming tool in and out of the path of said conveyed articles in synchronism with the conveyor so that each article is trimmed by the tool. The device includes a power driven tool and article support which are positioned opposite one another on each side of the conveyor. A drill and support are mounted on rotary platforms which cause them to repetitively move into trimming engagement, maintain trimming engagement, and thence disengage each article as it is carried past the rotary platforms by the conveyor.

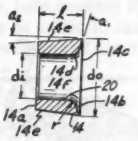
3,570,088
CLIPPING APPARATUS
Karl A. Klenz, Oakland, Calif., assignor to Rheem Manufacturing Company, New York, N.Y.
Original application June 26, 1967, Ser. No. 648,670, now Patent No. 3,516,222, dated June 23, 1970. Divided and this application June 18, 1969, Ser. No. 862,546
Int. Cl. B65b *51/05*
U.S. Cl. 29—33 **3 Claims**

Apparatus for evacuating a flexible container such as a food casing and applying an air tight seal thereto. By means of control valves a vacuum is applied to the container upon initiation of the operating cycle and actuation of the sealing device automatically shuts off the vacuum. Control valves are programmed so that gathering means for constricting the mouth of the container, a retractable probe projected into the container to facilitate evacuation



of the container, and a cut off knife for severing the container outwardly of the seal are all actuated at predetermined times in the cycle for performing the required steps substantially automatically without intervention of the operator.

3,570,089
INSIDE BEAD TRIMMING APPARATUS AND METHOD
Richard J. Dodson, Evanston, Ill., assignor to Clayton Mark & Company, Evanston, Ill.
Original application Oct. 19, 1965, Ser. No. 497,927, now Patent No. 3,395,614. Divided and this application Feb. 1, 1968, Ser. No. 730,961
Int. Cl. B26d *1/00*
U.S. Cl. 29—95 **3 Claims**

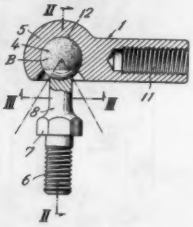


The present invention relates to a tool of the type used with an arbor for trimming the inside bead from welded tubing wherein the tool is of a hollow truncated conical shape and has a rounded surface extending from a cutting edge on the exterior base of the cone to the hollow interior thereof in order that severed weld may be guided through the hollow interior of the tool.

3,570,090
METHOD FOR THE MANUFACTURE OF BALL JOINTS
Hiroshi Teramachi, Tokyo, Japan, assignor to Nippon Thompson Co., Ltd., Tokyo, Japan
Filed Jan. 27, 1969, Ser. No. 794,097
Claims priority, application Japan, July 9, 1968, 43/47,963
Int. Cl. B23p *11/00, 17/00*
U.S. Cl. 29—149.5 **1 Claim**

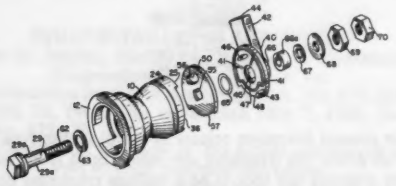
This specification discloses a method for the manufacture of ball joints, which comprises preparing a mold consisting of upper and lower halves for forming the joint portion or outer rod of a ball joint, and positioning in this mold a steel ball having a thin film of tin, copper or lead applied over a part of the surface thereof. The man-

ner of positioning is such that the steel ball rests as a "core" on the lower half of said mold. The method of the invention further comprises casting a charge of molten aluminium into said mold to thereby form an outer rod having a spherical head portion made of said cast aluminium which holds the steel ball therewithin, and simultaneously forming a cast aluminium alloy portion of a high bearing performance in said spherical portion of the outer rod. The thus formed outer rod with the steel ball held therein is removed from the mold and formed with



an internally threaded bore axially thereof toward the outer end thereof. An inner rod is then joined by friction welding to the exposed surface of the steel ball. The spherical head portion of the outer rod is struck from the exterior thereof to provide a clearance between the spherical head portion and the steel ball so that the steel ball can rotate within the spherical head portion of the outer rod. The ball joint thus obtained is simple in construction and economical to manufacture as well as accurate and excellent in performance.

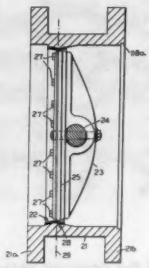
3,570,091
METHOD FOR CONVERTING VALVES
Richard E. Doremus, Washington Valley, and R Ellsworth Doremus, Clifton, N.J., assignors to Golden Gate Manufacturing Company, Delawanna, N.J.
Continuation-in-part of application Ser. No. 669,111, Sept. 20, 1967. This application Dec. 26, 1968, Ser. No. 787,133
Int. Cl. B21d *53/00;* **B21k** *29/00;* **B22g** *15/26*
U.S. Cl. 29—157.1 **10 Claims**



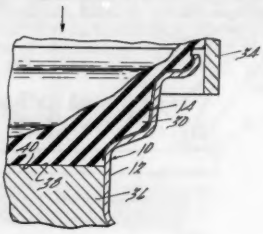
A method and apparatus for converting a valve used in tapping fluid from kegs from one having a tapping port on its end wall to one having an extending member with a tapping port therein and a washout passage in the end wall by attaching an insert piece with the washout passage therein and a valve member having an extending portion to the body of the original valve.

3,570,092
PROCESS FOR MANUFACTURING A SEAT FOR A BUTTERFLY VALVE
Irving O. Miner, Warwick, R.I., assignor to General Signal Corporation
Original application Dec. 27, 1967, Ser. No. 693,845, now Patent No. 3,511,474, dated May 12, 1970. Divided and this application May 1, 1969, Ser. No. 839,118
Int. Cl. B23p *11/00, 11/02, 19/00*
U.S. Cl. 29—157.1 **5 Claims**

The disclosure concerns a process for manufacturing a butterfly valve body containing a work-hardened, corrosion resistant metal seat insert. The seat is made from a ring of rectangular cross section which is expanded into place in the body, and simultaneously shaped and finished, by a cold working operation employing forming rollers which revolve about the axis of the body. The ring is restrained against axial movement, but permitted to extrude axially, until it has been deformed sufficiently to retain itself in the body. Thereafter, the axial restraint is removed, and the rolling step is continued to compress the ring tightly against continuous, sharp body edges which encircle the axis, to provide integral keys which lock the ring against annular body shoulders, and to give the seat its final shape and surface finish.



3,570,093
METHOD OF MAKING A WHEEL RIM
George E. Gollwitzer, Belleville, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed Jan. 6, 1969, Ser. No. 789,256
Int. Cl. B21h *1/10;* **B21k** *1/38*
U.S. Cl. 29—159.1 **7 Claims**

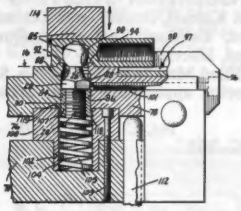


A wheel rim and method of making the same in which the rim is provided with a decorative facing of aluminum or other bright material. The facing, which is in ring form, is attached to the rim by use of a rubber bulging die.

3,570,094
APPARATUS FOR MAKING A BALL JOINT ASSEMBLY
Gilbert E. Davies, John M. Weston, and Gino L. Gasparini, Fort Wayne, Ind., assignors to Tuthill Pump Company
Original application Aug. 16, 1965, Ser. No. 479,860, now Patent No. 3,514,138, dated May 26, 1970. Divided and this application Aug. 18, 1969, Ser. No. 850,812
Int. Cl. B23p *19/00*
U.S. Cl. 29—200 **10 Claims**

Apparatus for fabricating a ball joint assembly of the type including a metallic body having a flat surface with a socket extending inwardly from the flat surface and forming an opening therein, and a ball stud having an elongated shank with a ball on one end swivelly retained in the socket, the shank having a longitudinal axis coincident with a diameter of the ball. A base plate is provided having a backing member mounted thereon, the backing member having an outer surface and a cylindrical bore.

A sleeve is telescopically received in the bore for receiving the other end of the shank with the one end and the ball spaced outwardly from the surface of the backing member. A compression spring in the bore bears against the sleeve and base plate. A pair of elongated punch members are provided having opposite ends, one end of each of the punch members being pivotally mounted on the base plate for swinging movement between adjacent positions in which the punch members extend in contiguous end-to-end relation, and spaced positions. The contiguous ends of the punch members have semi-cylindrical recesses therein which are juxtaposed and concentric about the longitudinal axis and which surround the one end of the shank. The punch members



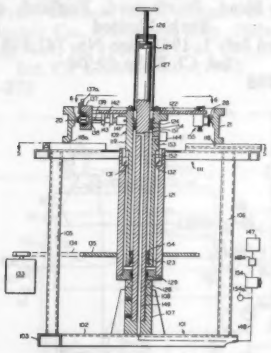
have outer sides with semi-circular punch edges projecting therefrom respectively contiguous to the recesses, the punch edges defining a circle concentric with the longitudinal axis and surrounding the portion of the ball adjacent the one end of the shank. The punch edges further define a plane normal to the longitudinal axis which is adapted to have the flat surface of the body positioned thereon with the ball received in the socket so that application of pressure to the body is a direction parallel with the longitudinal axis and toward the punch edges will cause the punch edges to indent portions of the flat surface of the body adjacent the socket opening inwardly toward the ball thereby to retain the ball in the socket.

3,570,095

MACHINE FOR SIMULTANEOUSLY EXPANDING AND SHAPING SEAT INSERTS IN BODIES OF BUTTERFLY VALVES

Irving O. Miner, Warwick, R.I., assignor to General Signal Corporation

Original application Dec. 27, 1967, Ser. No. 693,845, now Patent No. 3,511,474, dated May 12, 1970. Divided and this application May 1, 1969, Ser. No. 839,119
Int. Cl. B23p *19/00, 11/00, 11/02*
U.S. Cl. 29—200 **9 Claims**



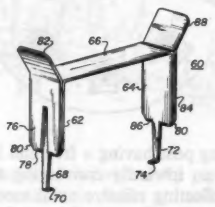
The disclosure concerns a cold working machine for expanding metal seat rings into place in the bodies of butterfly valves and for simultaneously shaping and finishing the valving surfaces of such rings. The machine includes three uniformly spaced forming rollers which revolve about a vertical axis, which coincides with the axis of the valve body, and which are pressed outward against the seat ring blank by rams supplied from an air operated hydraulic pump carried by the rotating structure. The machine also includes spring loaded guide rolls which engage the upper and lower margins of the seat ring blank at opposite sides of each forming roller and center the blank in the body until it has been deformed sufficiently to be self-retaining. The incorporation of various adjustment features enables the machine to handle valve bodies having diameters between 24" and 72" using the maximum number of common parts.

3,570,096

MODULE EXTRACTION TOOL

Charles William Sosinski, Linden, N.J., assignor to The Thomas & Betts Co., Elizabeth, N.J.

Filed Apr. 26, 1968, Ser. No. 731,671
Int. Cl. B25b *27/02*
U.S. Cl. 29—203 **6 Claims**



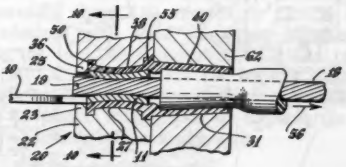
The disclosure is directed to a tool for removing modules from a module mounting rail assembly without disturbing adjacent modules. The tool is constructed of first and second parallel arms joined by a third transverse arm to permit placement of the first and second arms adjacent the sides of a module to be extracted. The first and second arms each terminate in at least one projection, each projection in turn terminating in an inturned rib to grasp the module for removal. Additional arms, in parallel with the first and second arms, help position the nibs in the mounting rail and tabs may be added to such additional arms to further control the positions of the nibs.

3,570,097

CRIMPING DIE

Wade R. Bowden, Jr., Milford, Ernest L. Cheh, Darien, and Nino Suffredini, Monroe, Conn., assignors to Burndy Corporation

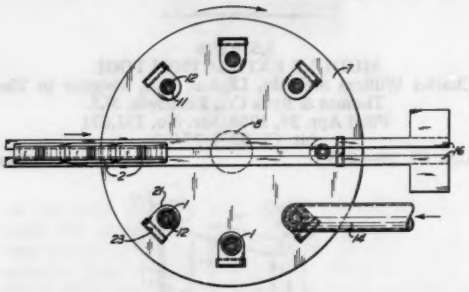
Filed Nov. 1, 1968, Ser. No. 772,723
Int. Cl. H01r *43/04*
U.S. Cl. 29—203 **11 Claims**



A two part die crimps a wire conductor to a connector barrel. The barrel is covered by a plastic insulating sleeve that forms a shroud for a short length of the conductor extending out of the barrel. One part of die crimps the barrel to the conductor and is formed with a channel into which the plastic of the sleeve flows during crimping to form a ridge that limits the extrusion of the sleeve so as to preserve its insulating value. The other part of the die presses the shroud portion of the sleeve against the

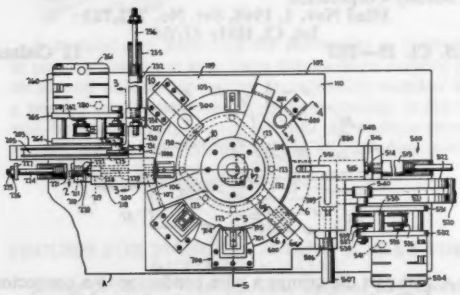
conductor. A stop determines the degree of movement between the two parts of the die and therefore the pressure against the shroud portion of the sleeve.

3,570,098
APPARATUS FOR ASSEMBLING POTENTIOMETER BRIDGING CONTACT DEVICE
Mogens W. Bang, Ridgway, Pa., assignor to Stackpole Carbon Company, St. Marys, Pa.
Filed Dec. 23, 1968, Ser. No. 786,274
Int. Cl. H05k *13/04*
U.S. Cl. 29—203 **9 Claims**



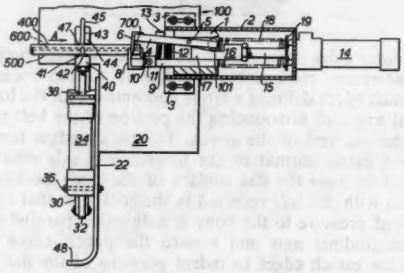
A coil-receiving post having a free end is provided with a recess having an inwardly converging side wall. There are means for effecting relative axial movement between the post and the laterally spaced legs of a linear motion potentiometer slide to press the free ends of the legs and the converging side wall of the post against each other in order to squeeze the legs together temporarily. There also are means for moving a wire coil axially off the free end of the post and into position around the squeezed legs, and means for then separating the post from the legs to permit the free ends of the legs to spring apart with the wire coil encircling them.

3,570,099
UNIT CARRIER LOADER
Daniel W. Ackerman, Chenango Bridge, Robert H. Holmes, Marathon, and Albert W. Zemek, Binghamton, N.Y., assignors to Universal Instruments Corporation, Binghamton, N.Y.
Filed Feb. 7, 1969, Ser. No. 803,524
Int. Cl. H05k *3/30, 13/04*
U.S. Cl. 29—203 **38 Claims**



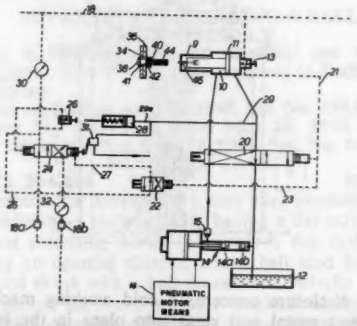
An apparatus and process for inserting dual in-line lead electrical components into unit carriers having a slotted rotating index wheel with work stations located around the periphery thereof including separate feed mechanisms for the components and carriers, lead forming and straightening dies, a sensing photo-cell assembly, an inserting plunger and two magazines for receiving the loaded carriers. The work stations are powered by pneumatic cylinders operated by a control system which is timed by cams and switches on the index wheel drive train which contains a Geneva drive train to index the wheel to a new work station for each revolution of a pneumatically driven motor. The device feeds the components and carriers to the index wheel where the component leads are straightened, the component is loaded into the carrier and the filled carrier is loaded into a magazine.

3,570,100
INSULATION STRIPPING ATTACHMENT FOR ELECTRICAL CONNECTOR CRIMPING PRESS AND CONNECTOR CRIMPING PRESS HAVING INSULATION STRIPPING MEANS
Colin David Kindell, Bushey, and Terence Robert Raynor, Chingford, London, England, assignors to AMP Incorporated, Harrisburg, Pa.
Filed May 1, 1969, Ser. No. 820,816
Claims priority, application Great Britain, May 3, 1968, 21,012/68
Int. Cl. H01r *43/04*
U.S. Cl. 29—203 **11 Claims**



A stripper attachment for a crimping press comprises wire gripping jaws and an insulation stripping device. The jaws are mounted on a jaw-operating cylinder which swings about a pivot from a first position opposite the stripping device and in which position the stripping device strips a wire end held by the jaws to a second position in which the stripped wire end is located over a crimping ferrule on a crimping anvil of the crimping press so that the ferrule can be crimped to the wire end.

3,570,101
HYDRAULIC AND PNEUMATIC SYSTEM FOR CONTROLLING TOOLS
Albert Henry Stead, Northwood, England, assignor to Skyhi Limited
Filed July 1, 1968, Ser. No. 741,518
Int. Cl. B23p *19/04*
U.S. Cl. 29—208 **6 Claims**



The disclosure relates to a method and apparatus for producing a plurality of predetermined output pressure

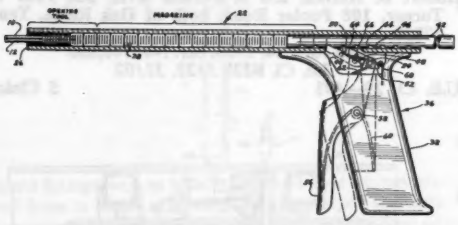
levels from a hydraulic pump, for example for the purpose of anchoring a bolt under tension, and which consists in driving the pump by an air operated motor and positively varying the pressure of the air supply to the said air motor to produce the said predetermined hydraulic pressure levels from the pump which, in the embodiment described, operates a hydraulic bolt-anchoring tool in accordance with a plurality of steps in a bolt anchoring sequence.

3,570,102

DEVICE FOR APPLYING A HELICAL SPRING CONNECTOR TO A PLURALITY OF WIRES OR RODS

John H. Blomstrand, 214 Hazel Drive, Corona del Mar, Calif. 92625

Filed Feb. 17, 1969, Ser. No. 799,874
Int. Cl. B23q 7/10; B23p 19/04
U.S. Cl. 29—212 12 Claims



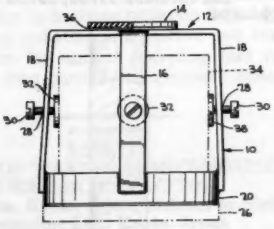
A helical spring connector has longitudinally spaced ends and a series of intermediate resilient convolutions, the spaced ends projecting outwardly. The device for applying such a connector to a plurality of wires or rods includes a tubular member through which the connector is advanced, the forward end of the connector being angularly shifted by cam action with respect to the trailing or rear end as the advancement progresses. Such action transversely enlarges the convolutions for the reception of the rod-like elements. When the forward end reaches the end of the tubular member, it is released and snaps back to its normal position, the enlarged convolutions contracting against the inserted elements. A feeding mechanism is provided for advancing a number of connectors in succession through the tubular member.

3,570,103

GLASS METER INSTALLING DEVICE

Bobbie G. Price, Cordell, Okla., assignor to Southwest Electric Co., Oklahoma City, Okla.

Filed Nov. 12, 1968, Ser. No. 774,615
Int. Cl. B25b 11/00, 27/00
U.S. Cl. 29—270 8 Claims



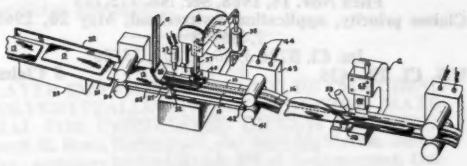
A glass meter installing device having a plurality of support members extending from a platen disposed at the butt end of the device and supporting a collar adapted to abut the rim of a glass enclosed meter to be installed, and cushioning means disposed on the support members resiliently abut the glass enclosure of the meter to secure the device to the glass enclosure of the meter; the meter is disposed adjacent an installation socket and force applied to the platen is transmitted through the support members and the collar to the rim of the meter to force the meter into the socket without subjecting the glass enclosure of the meter to breakage.

3,570,104

METHOD AND APPARATUS FOR MAKING A CONTINUOUS SERIES OF FLY PIECES

Philip Brehmer Jensen, Naugatuck, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Sept. 18, 1969, Ser. No. 859,149
Int. Cl. A41h 37/06; B29d 5/00
U.S. Cl. 29—408 10 Claims



A continuous series of individual fly pieces connected by a slide fastener chain is made automatically with a sewing machine and gapping device. Sensing means in the form of photoelectric cells operate in conjunction with feed rolls to control the fly pieces as well as the operation of the sewing machine and gapping device. A light beam senses the presence of the leading and trailing ends of the individual fly pieces so as to effect correct automatic control regardless of the length of such fly pieces and without requiring accurate placement of the fly pieces by an operator.

3,570,105

METHOD OF MAKING NON-BUBBLING DISPERSION-STRENGTHENED LEAD PRODUCTS

Michael V. Rose, Sewickley, Pa., assignor to St. Joseph Lead Company, New York, N.Y.

No Drawing. Original application Feb. 10, 1966, Ser. No. 526,394, now Patent No. 3,499,800, dated Mar. 10, 1970. Divided and this application May 28, 1969, Ser. No. 841,665
Int. Cl. B22f 3/24
U.S. Cl. 29—420.5 5 Claims

Method of producing lead products strengthened by the dispersion of insoluble solid substances therein and capable of being hot worked without substantial gas evolution. The products are made by heating lead particles not exceeding about 150 microns in particle size, coated or admixed with solid substances capable of dispersion in the lead, at a temperature in the range from about 280° C. to just below the melting point of the lead particles and thereafter subjecting a body of the particles to plastic deformation to disperse the insoluble solid substance in the lead matrix.

3,570,106

METHOD FOR PRODUCING SEAMLESS REFRACTORY METAL TUBING

James A. McGurty and Charles O. Tarr, Cincinnati, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,435
Int. Cl. B23p 17/00
U.S. Cl. 29—423 4 Claims

A method for producing seamless refractory metal tubing is provided which utilizes a composite core filler

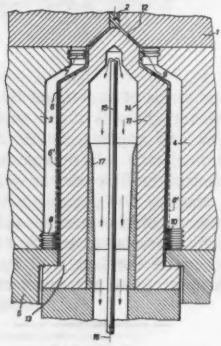
disposed coaxially within a billet of primary refractory metal from which the tubing is to be formed. The composite core filler comprises an outer core portion which is compatible with the working and metallurgical characteristics of the primary refractory metal, and an inner core portion disposed coaxially within the outer portion. The inner core portion is selected from materials easily removed by chemical leaching. Following an extrusion operation, the inner core portion is first removed through chemical leaching in order to provide an axial passage along the entire length of the outer core portion. The outer core portion is then removed by flowing chemicals through the axial passage formed by removing the inner core portion.

3,570,107

METHOD FOR INJECTION MOLDING AN INFANT'S FEEDING BOTTLE

Heinrich Denzler von Matt, 81 Stalli Konerstrasse, Birmensdorf, Zurich, Switzerland

Filed Nov. 14, 1968, Ser. No. 775,753
Claims priority, application Switzerland, May 20, 1968, 7,436/68
Int. Cl. B29d *3/00, 23/02, 23/20*
U.S. Cl. 29—436 **6 Claims**



An infant's feeding bottle having an internal bottle wall of cylindrical shape for receiving a slideable follow-up piston is made by injection molding in a split mold having outer mold parts movable relative to an internal core. After injection of the plastic, the outer mold parts are shifted from the bottle body and the core is moved axially downward through an open bottom end of the bottle body. The upper larger diameter portion of the core acts to expand and calibrate the lower, soft and plastic condition, tapering bottle body to a truer cylindrical shape. During removal of the core, the upper portion of the bottle around the core is cooled by a fluid. A follow-up piston of thermoplastic material is molded and then stored for a prolonged period of time in a hollow cylinder to permit shrinkage from an oversized diameter to that desired for providing sealing contact with the cylindrical body wall.

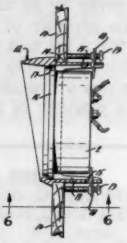
3,570,108

METHOD OF PROVIDING AND INSTALLING A GROUP OF INSTRUMENTS IN A PANEL

Salvatore S. Sarra, Fond du Lac, Wis., assignor to Brunswick Corporation, Chicago, Ill.

Filed Apr. 23, 1969, Ser. No. 818,732
Int. Cl. B23p *21/00*
U.S. Cl. 29—469 **1 Claim**

A plurality of electrical instruments are prewired in a single harness for shipment, after which they are individually mounted in corresponding individual openings in a panel or dash by inserting the same from the rear



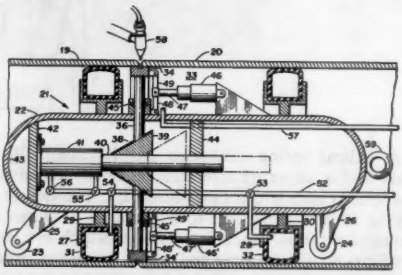
and clamping the same to a front bezel peripheral of the openings.

3,570,109

JOINING METHOD AND APPARATUS THEREFOR

Hubert B. Harlan, 230 S. Purdue Ave., and Paul W. Turner, 108 Poplar Road, both of Oak Ridge, Tenn. 37830

Filed June 24, 1968, Ser. No. 740,832
Int. Cl. B23k *5/22, 31/02*
U.S. Cl. 29—491 **5 Claims**



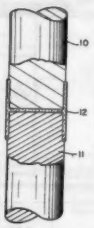
An improved method for joining abutting surfaces of adjacent materials wherein a dam member is placed on the back side of the abutting surfaces to define, in combination with the abutting surfaces, a space to be filled with fluid joining matter, a negative pressure, relative to the ambient pressure on the front (torch) side of the weld, being provided on the back side of the abutting members to force complete filling of at least a part of the area defined by the dam and abutting members. The method is particularly useful in joining large diameter pipe.

3,570,110

METHOD OF BRAZING

Edward J. Zdanuk, Lexington, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Original application Mar. 24, 1966, Ser. No. 537,036, now Patent No. 3,455,663, dated July 15, 1969. Divided and this application Apr. 18, 1969, Ser. No. 817,427
Int. Cl. B23k *31/02, 35/38*
U.S. Cl. 29—494 **3 Claims**



A method of making a brazed joint comprising contacting a tungsten member and a copper member with a

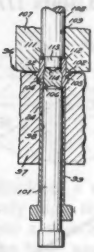
brazing alloy of silver, copper and titanium in a vacuum atmosphere at an elevated temperature sufficient to cause said brazing alloy to wet said tungsten member and said copper member, thereby joining said members.

3,570,111

METHOD OF MAKING METAL FITTINGS

Louis B. Courtot, Euclid, and Thomas J. Mack, Cleveland, Ohio, assignors to The Weatherhead Company, Cleveland, Ohio

Original application Oct. 1, 1964, Ser. No. 400,701, now Patent No. 3,442,537, dated May 6, 1969. Divided and this application Sept. 11, 1968, Ser. No. 801,880
Int. Cl. B21d *39/00*; B23p *11/02*
U.S. Cl. 29—522 6 Claims



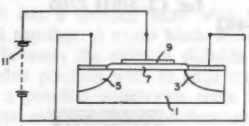
Forged fittings such as tube fittings and hose fittings are formed from a blank of composite material of uniform cross-section having a jacket of one metal and a core of a different metal having a different modulus of elasticity. By simultaneously working the composite blank as in a progressive heading machine, the core and shell are worked together to become mechanically interlocked in the finished article even though no actual bonding takes place between the different metals. When the core has a lower modulus of elasticity in the finished article the core is in compression and the jacket is in tension.

3,570,112

RADIATION HARDENING OF INSULATED GATE FIELD EFFECT TRANSISTORS

Albert L. Barry and Donald F. Page, Ottawa, Ontario, Canada, assignors to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence

Filed Dec. 1, 1967, Ser. No. 687,383
Int. Cl. B01j *17/00*; H01g *13/00*
U.S. Cl. 29—571 5 Claims



A metal-oxide-semiconductor field effect device is rendered less sensitive to ionizing radiation by subjecting the device to ionizing radiation at a positive gate bias several times larger than the normal operating bias voltage of the device, and then partially temperature annealing the device.

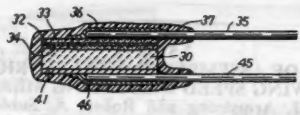
3,570,113

METHOD OF MAKING SEMICONDUCTIVE CERAMIC CAPACITOR

Minoru Chiba, Kyoto, Japan, assignor to Nichicon Capacitor Ltd., Kyoto, Japan

Filed Mar. 17, 1969, Ser. No. 807,734
Int. Cl. H01g *13/00*
U.S. Cl. 29—546 7 Claims

A semiconductor ceramic capacitor having a thin layer containing copper on at least one surface portion of a substrate formed of N-type barium titanate containing a small quantity of a rare earth element and a coating containing frit, lead, and powdered silver or silver oxide with the lead, silver and copper being diffused into said substrate and a conductive layer on another surface portion



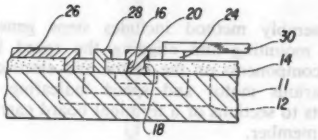
of said substrate to form said capacitor. The invention further provides a method of manufacturing the foregoing capacitor which is made by applying said copper layer and said layer containing frit, lead, and silver in overlying relationship and heating said substrate and layers in an oxidizing atmosphere.

3,570,114

BI-LAYER INSULATION STRUCTURE INCLUDING POLYCRYSTALLINE SEMICONDUCTOR MATERIAL FOR INTEGRATED CIRCUIT ISOLATION

Kenneth E. Bean, Richardson, and Billy M. Martin, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Original application Jan. 29, 1968, Ser. No. 701,460, now Patent No. 3,519,901, dated Aug. 7, 1970. Divided and this application Feb. 27, 1969, Ser. No. 813,379
Int. Cl. B01j *17/00*; H01l *1/16*
U.S. Cl. 29—577 17 Claims



This specification discloses a method of fabricating an integrated circuit characterized by electronic components being formed in a polycrystalline semiconductor, such as silicon or germanium, deposited at less than 900° C. and at a rate of less than one micron per minute and overlying an isolation layer covering components formed in a base region of monocrystalline semiconductor material. The components in the polycrystalline semiconductor may employ junctions and may be active or passive. More than one layer of polycrystalline semiconductor and more than one isolation layer may be employed.

3,570,115

METHOD FOR MOUNTING ELECTRONIC CHIPS

Bryce E. Barnes, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 6, 1968, Ser. No. 726,818
Int. Cl. B01j *17/00*; H01l *5/00, 7/10, 7/12, 7/48, 7/54*
U.S. Cl. 29—578 7 Claims

A method for mounting an electronic chip within a circuit board, permitting the use of deposited interconnections. The circuit board is inverted against a Teflon coated

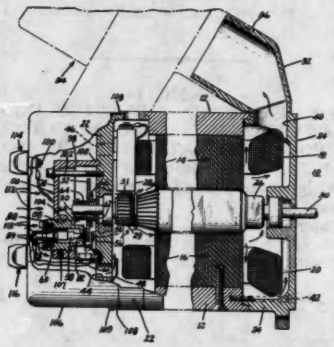
sheet, the chip to be mounted is positioned through a hole in the board against the Teflon coated sheet, and epoxy is added from the rear of the hole to fill the interstice between the chip and the perimeter of the hole. After the resin has cured, the Teflon coated sheet is removed and interconnection conductors may be deposited across the resin.

3,570,116

METHOD OF ASSEMBLING AN ELECTRIC MOTOR HAVING SPEED INDICATING MEANS

Fredrick J. Armstrong and Robert A. Susdorf, Fort Wayne, Ind., assignors to General Electric Company

Original application Apr. 27, 1967, Ser. No. 634,183, now Patent No. 3,465,184, dated Sept. 2, 1969. Divided and this application Feb. 3, 1969, Ser. No. 797,380
Int. Cl. H02k 15/00
U.S. Cl. 29—596 4 Claims



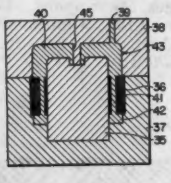
The assembly method includes steps generally directed to mounting and aligning the speed indicating assembly components on the motor and electrically connecting various motor and speed indicating assembly components to sections of a terminal board carried by an enclosure member.

3,570,117

METHOD OF MAKING SQUIRREL-CAGE OUTER ROTOR FOR OUTER ROTOR TYPE SQUIRREL-CAGE INDUCTION MOTORS

Kenichi Kitamura, Yokohama-shi, and Seiichi Watanabe, Zushi-shi, Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Oct. 26, 1967, Ser. No. 678,392
Claims priority, application Japan, Oct. 28, 1966, 41/70,766
Int. Cl. H02k 15/02
U.S. Cl. 29—598 2 Claims



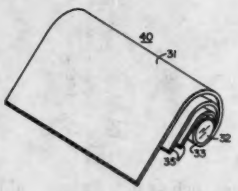
A squirrel-cage outer rotor and a method of making the same wherein annular magnetic laminae provided with slots into which rotor conductors are to be respectively inserted along the inner peripheries are laminated to a proper thickness to form an iron core of a squirrel-cage outer rotor and are die-cast while fixed and held with a jig or die-casting metallic dies on the outer or inner peripheries or in the slots so that the above mentioned iron core may be molded integrally with rotor conductors, an end ring and a housing.

3,570,118

METHOD OF PRODUCING COPPER CLAD SUPERCONDUCTORS

William T. Reynolds, McMurray, and Russell M. Schrecengost, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 10, 1967, Ser. No. 622,266
Int. Cl. H01v 11/00
U.S. Cl. 29—599 2 Claims



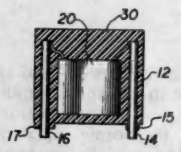
Copper cladding is provided on alloy or compound superconductors such as niobium containing materials in strip or wire form by bonding the super conductive material to the copper through an intermediate aluminum bonding layer. Aluminum foil is placed about the superconductive material and then inserted into a copper sheath and bonding occurs in the rolling thereof or drawing it into the wire. Heat treatment is subsequently employed to improve the superconductive properties of the alloy or to react the constituents to form the superconductive compound.

3,570,119

METHOD OF MAKING AN ENCAPSULATED COMPONENT

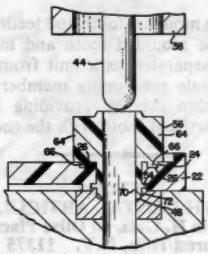
Ronald A. Baker, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Continuation of application Ser. No. 614,836, Feb. 9, 1967. This application Sept. 8, 1969, Ser. No. 856,219
Int. Cl. H01f 7/06
U.S. Cl. 29—602 3 Claims



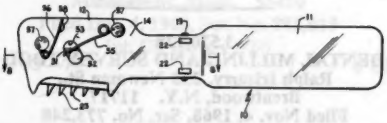
A cavity is provided at one end of a preform of insulative material and a plurality of terminal lead-wires are radially spaced from the cavity within the preform and extend alongside the cavity and from opposing ends of the preform. A component is disposed within the cavity in connection to the portions of the lead wires which extend from the cavity end of the preform, and insulative material is disposed over the component and connections and is sealed to the cavity end of the preform.

3,570,120
METHOD OF MAKING A SWITCH WITH MOLDED BEARING
William E. Adams, Broadview Heights, Ohio, Werner R. Bauer, Radnor, Pa., and John B. Schultheis, Worthington, Ohio, assignors to Robertshaw Controls Company, Richmond, Va.
Original application May 24, 1965, Ser. No. 458,223, now Patent No. 3,392,253, dated July 9, 1968. Divided and this application Jan. 30, 1968, Ser. No. 701,593
Int. Cl. H01h *11/00*
U.S. Cl. 29—622 9 Claims



This application discloses a switch construction made by molding a relatively high temperature resistant thermosetting material into a switch base with a shaft opening passing through the base, and forming a shaft bearing in said opening of relatively low temperature elastic limit thermoplastic material, said bearing being formed at a temperature of said relatively low temperature elastic limit. A switch is placed on said base and a switch shaft is inserted in said bearing and operatively connected to said switch.

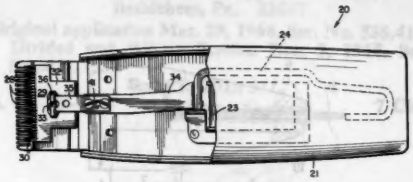
3,570,121
HAIR-CUTTING COMB WITH FLOATING BLADE
Joseph A. Graceffo, Seneca Falls, N.Y., assignor to Helida R. Graceffo, Seneca, Falls, N.Y., a fractional part interest
Filed Nov. 29, 1968, Ser. No. 780,033
Int. Cl. B21b *21/12*; B26b *19/00*
U.S. Cl. 30—30 9 Claims



The comb has a toothed head with front and back sides secured together. A razor blade secured to a carrier in a recess between the sides is slidable from a spring-biased extended position with its edge crossing the tooth intervals to a position withdrawn from the teeth. Each tooth has one side curved to deflect combined hair in one direction longitudinally of the comb and the carrier is guided in the recess to slide the blade in the other direction when moved by hair pressure from extended to withdrawn position.

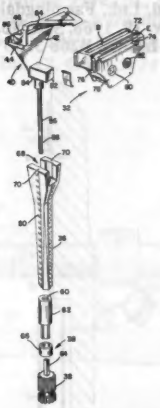
3,570,122
DRIVE FINGER FOR A CLIPPER BLADE
Vernon H. Williams, Columbus, Ind., assignor to Vemco Corporation, Columbus, Ind.
Filed Dec. 11, 1968, Ser. No. 782,829
Int. Cl. B26b *19/02*
U.S. Cl. 30—210 2 Claims

A drive connection between a vibratory armature and a reciprocable clipper blade which is formed to provide a recess in its surface remote from a mating stationary blade, said connection comprising a spring connected to the armature and provided at its distal end with a block received in such recess, the block being formed to maintain movable point- or line-contact with opposing boundary



walls of the recess to press the reciprocable blade into cooperative contact with the stationary blade and to transmit the vibratory motion of the armature to said reciprocable blade.

3,570,123
DOUBLE EDGE RIBBON-RAZOR
Leopold K. Kuhnl, Stratford, Conn., assignor to Eversharp, Inc., Milford, Conn.
Filed June 6, 1968, Ser. No. 735,028
Int. Cl. B26b *21/26*
U.S. Cl. 30—40.1 3 Claims

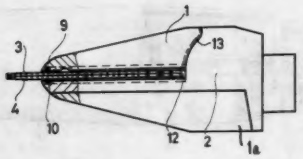


A magazine for use with a holder to form a safety razor, wherein a ribbon-type blade is provided which has cutting edges on both sides thereof. Guide means are provided for maintaining the alignment of the ribbon-type blade without reference to the unused edges thereof, and means are provided for advancing segments of the blade successively into position on top of the magazine unit. Top guide means is disposed over the top of the bridge for imparting the desired angle to the portion of the blade which is exposed for shaving. Various means are described for holding the cartridge unit in position in a handle to form a safety razor unit.

3,570,124
ANIMAL SKINNING APPARATUS
Hans Georg Wezel, Maulbronn, Wurttemberg, Germany, assignor to Schmid & Wezel, Maulbronn, Wurttemberg, Germany
Filed Apr. 1, 1969, Ser. No. 811,745
Claims priority, application Germany, June 25, 1968, Sch 45,103
Int. Cl. B26b *19/12*
U.S. Cl. 30—208 10 Claims

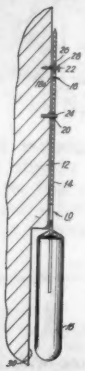
An animal skinning apparatus has a support and a cover between which there are located a pair of coaxial toothed cutter wheels which are rotatably carried by the support. The sides of the support and of the cover which face the

cutter wheels are provided with grooves extending circumferentially of the cover and support, and sealing strips are located in these grooves and slidingly engage the respective cutter wheels to prevent entry of contaminants



into the interior of the apparatus. Portions of the cutter wheels extend outwardly beyond the support and cover for cutting purposes.

3,570,125
KNIFE AND KNIFE SUPPORT
Jerome S. Hahn, Glen Head, N.Y., assignor to Regent Sheffield, Ltd., Farmingdale, N.Y.
Filed Nov. 19, 1968, Ser. No. 777,127
Int. Cl. B26b *3/00*
U.S. Cl. 30—296 **4 Claims**

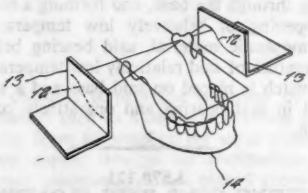


A knife and knife support are provided with pin and cutout means for releasably securing the knife to the support in a manner precluding inadvertent disengagement of the knife. Preferably, the support is provided with a retaining pin including a shank and a broad head, and a positioning pin including only a shank. The knife includes a keyhole-shaped cutout dimensioned to be secured upon the retaining pin and a positioning cutout located with respect to the keyhole-shaped cutout so that the retaining pin can be removed from the keyhole cut out only when the positioning pin is first disengaged from the positioning cutout.

3,570,126
SETTING PROCESS AND DEVICE FOR DENTAL PROSTHESIS
Marc Louis Reynaud, 16 Bd. Gambetta, 38 Grenoble, France
Filed July 5, 1968, Ser. No. 742,927
Claims priority, application France, July 6, 1967, 5,133
Int. Cl. A61c *9/00*
U.S. Cl. 32—17 **8 Claims**

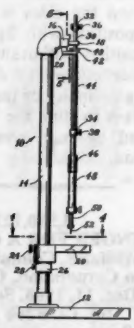
A process and a device is disclosed for taking negative impressions of teeth which is then used to form corresponding artificial teeth. A male positioning member and a female positioning member releasably engage to establish a predefined indexing position. The male and female positioning members cooperate with a moulding ring which is configured to fit around a portion of the tooth to be artificially reproduced. Then a negative tooth impression is made of the moulded tooth and teeth adjacent thereto after which the moulded tooth and male positioning member may be separated as a unit from the tooth impression. The female positioning member is retained in the tooth impression thereby providing for subsequent alignment of the artifical tooth with the tooth impression.

3,570,127
CUT PATH DENTAL ARTICULATOR
Edwin H. Getz, 60 Olive Place, Forest Hills, N.Y. 11375
Filed Nov. 27, 1968, Ser. No. 779,391
Int. Cl. A61c *11/00*
U.S. Cl. 32—32 **1 Claim**



A dental articulator which is able to simulate all the movements of a human jaw, the articulator incorporating metal or plastic cut-path guides which are originally obtained by a transfer method from tracings taken directly from the jaw movements of a patient by pantograph means.

3,570,128
DENTAL MILLING AND SURVEY TOOL
Ralph Irizarry, 232 Newman St., Brentwood, N.Y. 11717
Filed Nov. 4, 1968, Ser. No. 773,240
Int. Cl. A61c *11/00*
U.S. Cl. 32—40 **7 Claims**

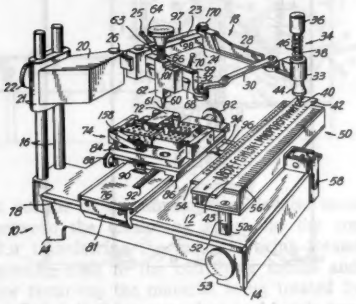


A guide is provided to permit a dental tool to make a bi-directional cut in the crown of a tooth and survey a dental cast.

3,570,129
ENGRAVING MACHINE

Joseph T. Del Vecchio, Manuet, N.Y., assignor to Granlip Corporation, New York, N.Y.

Filed Mar. 6, 1968, Ser. No. 710,838
Int. Cl. B43l *13/10*
U.S. Cl. 33—25 10 Claims

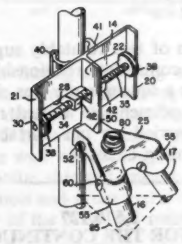


An engraving machine with an engraving tool having a first member reciprocally movable in a plane transverse to the axis of the engraving tool and a second member mounted on said first member and reciprocally movable in that plane at right angles to the movement of the first member. The second member includes jaws on which are mounted the articles to be engraved, which jaws are normally biased closed and are opened and closed simultaneously by cam action.

3,570,130
HOLDING DEVICE FOR SURVEYING INSTRUMENTS

Sheldon Boehm, 5405 Queen Ave. S., Minneapolis, Minn. 55410

Filed Dec. 4, 1968, Ser. No. 781,015
Int. Cl. G01c *15/06*
U.S. Cl. 33—74 8 Claims

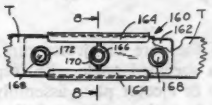


A holding device for surveying instruments and, in particular, sighting instruments such as a range pole or a level rod. The holding device includes a mounting bracket for the rod to be supported which clamps the rod by means such as to leave the front face substantially unobscured and which has a pair of adjustable legs thereon which cooperate with the surveying rod or range pole to form a tripod type support and which legs are adjustable to support the instrument or rod in a reference position.

3,570,131
LAYOUT SYSTEM AND ATTACHMENT FOR FLEXIBLE COILED TAPES

Oswin C. Moll, 1640 Chippendale Circle, Bethlehem, Pa. 18017

Original application Mar. 29, 1966, Ser. No. 538,414. Divided and this application Dec. 9, 1968, Ser. No. 822,753
Int. Cl. G01b *3/12*
U.S. Cl. 33—138 7 Claims

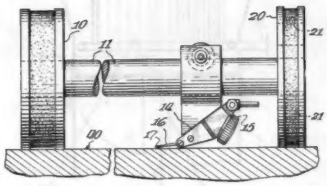


A member having integral retaining means thereon is provided for coupling two flexible, coilable measuring tapes.

3,570,132
SQUARING TOOL

Francesco Guzzo, Melrose Park, Ill., assignor to John L. Hutchinson, Wheaton, Ill., a fractional part interest

Filed June 11, 1969, Ser. No. 832,377
Int. Cl. G01b *5/24*
U.S. Cl. 33—174 2 Claims



The present invention is directed to a tool for determining, within limits, whether one surface is at right angles to another surface. The tool consists of a circular wheel-like base and a coaxial cylindrical shaft fixed perpendicular to the base. Attached to the shaft is a sensitizer or pickup arm adapted to contact a surface at right angles to the surface supporting the base. Associated with the sensitizer arm is an indicator whose reading is controlled by the movement of the sensitizer arm. Also provided is a second circular wheel-like element adapted to be removably attached to the free end of the shaft, which, together with the wheel-like base, is used to zero the sensitizing arm when the tool is placed on its side with the two wheels resting on the same flat surface.

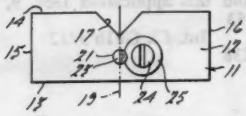
3,570,133
SPOTTING FIXTURE AND METHOD OF USE

Folke Halward, 29625 Bristol Lane, Birmingham, Mich. 48010

Filed Jan. 22, 1969, Ser. No. 792,942
Int. Cl. G01b *3/00*
U.S. Cl. 33—189 4 Claims

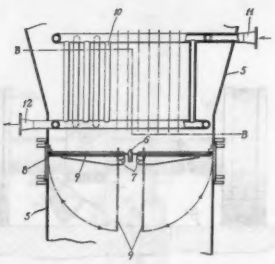
A spotting fixture comprising a rectangular plate notched at one edge and having a punch slidably mounted

with its axis on a line bisecting the notch and perpendicular to said edge. The fixture is used to drill a locking pin hole in a mold plate or ejector plate assembly of the type having a core pin or ejector pin which is to be held in position by the locking pin. To use the fixture, the notch



is placed against the core or ejector pin and the fixture plate is held at a specified angle with respect to an edge of the mold plate or ejector plate assembly. The punch is then struck to indent the surface of the mold plate or ejector plate assembly. The locking pin hole is drilled at the indentation.

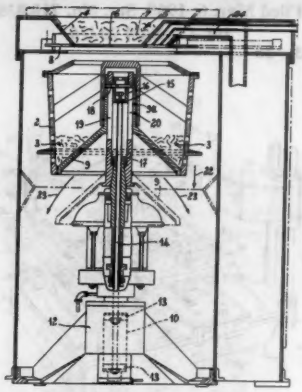
3,570,134
TURNDOWN PERFORATED PLATE TYPE APPARATUS EQUIPPED WITH HOT FLUID PIPES FOR DRYING PULVERANT MATERIALS
Jiyuichi Nara 2–7–8 Higashi-ooi, Shinagawa-ku, Tokyo, Japan
Filed Sept. 24, 1969, Ser. No. 860,642
Int. Cl. F26b *17/14*
U.S. Cl. 34—57 **1 Claim**



A turndown perforated plate type apparatus equipped with hot fluid pipes for drying pulverant mtaerials, comprising a boiler casing having combinations of twin blade type turndown perforated plate means and hot pipe means for supplying hot air from below the perforated plate means to introduce the heated medium through the swirls of fluidized pulverant material, each of said perforated plate means consisting of a partition plate provided diametrally of the boiler casing, a pair of rotating shafts located parallel to said partition plate and rotatably supported by the boiler casing, and a pair of semicircular frames supporting semicircular perforated plates therein and which are secured at the straight ends to the rotating shafts, said combinations being arranged in a vertical series within said boiler casing.

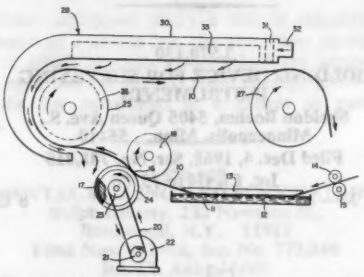
3,570,135
CENTRIFUGAL DRIERS ESPECIALLY FOR METALLIC OR OTHER PARTS
Joseph Antoine Noel Rousselet, Montalivet, Annonay, Ardeche, France
Filed Jan. 30, 1969, Ser. No. 795,294
Claims priority, application France, Apr. 17, 1968, 49,915
Int. Cl. B04 *11/00*
U.S. Cl. 34—58 **10 Claims**

A centrifugal drier of the top-loading, bottom-unloading type, as used for metal parts, has a conical stocking or loading hopper fixed above the top of a rotary basket. A sliding drawer, actuated by a jack, with a semi-circular cut-out at the front facilitates even distribution of the load into the basket. The bottom of the basket can be



opened and closed by a jack arranged in the shaft suspending the basket. Pulsed hot air can be directed into the basket.

3,570,136
APPARATUS FOR DRYING AN ELECTROPHOTOGRAPHIC RECORDING ELEMENT
Nils L. Hakanson, West Springfield, Mass., assignor to The Plastic Coating Corporation, Hampden County, Mass.
Filed Dec. 9, 1968, Ser. No. 782,129
Int. Cl. G03g *13/10*
U.S. Cl. 34—114 **6 Claims**

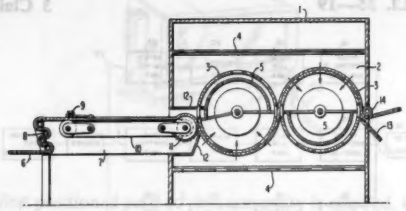


The combination of two rotatably supported rolls disposed in parallel contacting relationship with one another so as to form a squeegee nip, gas circulating means, and, in some embodiments, a heated roll for drying a liquid developer carried on one surface of an electrophotographic recording element.

3,570,137
APPARATUS FOR THE CONTINUOUS TREATMENT OF WEB-SHAPED MATERIALS
Heinz Fleissner, Egelsbach, near Frankfurt am Main, Germany, assignor to Vepa AG
Filed Dec. 19, 1968, Ser. No. 785,263
Claims priority, application Germany, Dec. 19, 1967, P 16 35 358.5
Int. Cl. F26b *11/02*
U.S. Cl. 34—115 **24 Claims**

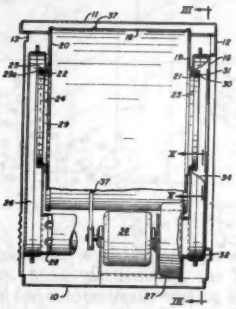
The present disclosure is directed to an apparatus for the continuous treatment of web-shaped materials which comprises a heat-insulated treatment housing, at least one perforated conveying means rotatably disposed within said

housing, fan means provided in said housing for subjecting said conveying means to a suction draft and for circulating the treatment medium, heating means provided in the circulation of the treatment medium, inlet means for introducing the material to be treated to the housing, said inlet means comprising a tensioning zone at least partially



disposed outside of the housing, needle disc means provided between the tensioning zone and the conveying means for transferring the material being treated from the tensioning zone to the conveying means and outlet means for removing the material being treated from the treatment housing.

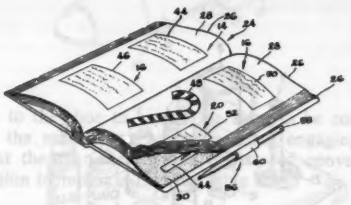
3,570,138
CLOTHES DRYERS
Peyton W. Douglas, Bemus Point, and Russell Patrick, Jamestown, N.Y., assignors to Blackstone Corporation
Filed Nov. 12, 1968, Ser. No. 775,039
Int. Cl. F26b *11/04*
U.S. Cl. 34—133 **7 Claims**



A clothes dryer having a housing with a top, bottom and four sidewalls, one sidewall having an opening coaxial with a rotatable drum in the housing having axial end openings bounded by axial flanges supported in radial ducts, one on the wall surrounding the opening and the other on the opposite sidewall, means for delivering hot air through the ducts and drum and a drive means engaging the periphery of the drum for rotating the same.

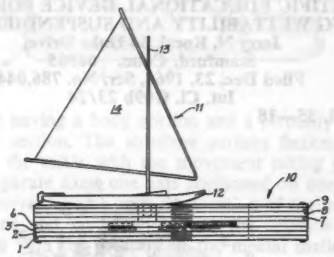
3,570,139
TEACHING APPARATUS
Janice S. Ladd, 677 Fairview Ave., Elmhurst, Ill. 60126, and Marillyn H. Emerson, 405 E. Lake Shore Drive, Barrington, Ill. 60010
Filed Aug. 18, 1969, Ser. No. 850,724
Int. Cl. G09b *1/00*
U.S. Cl. 35—8 **17 Claims**

Teaching apparatus for establishing an association between a selected chemical sense stimulus and an identification thereof. A stimulus producer is provided to produce a stimulus of a chemical sense upon actuation, preferably in the form of a sheet with a coating including rupturable capsules containing a substance which produces the stimulus. A display is also provided which includes an indication of a selected location for the stimulus producer and a stimulus identification adjacent to the



selected location for providing an identification of the stimulus. Positioning of the stimulus producer at the location and actuation of the stimulus producer produces the stimulus in physical proximity to the identification means so that an association between the stimulus and the identification is established.

3,570,140
TEACHING AID
Edmund J. Sprong, Fairfield, Conn. (38 Lockwood Lane, Riverside, Conn. 06878)
Filed July 2, 1969, Ser. No. 838,388
Int. Cl. G09b *9/06*
U.S. Cl. 35—11 **3 Claims**

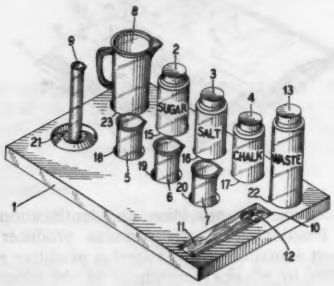


An aid for learning the skill of handling a sailboat in which a sailboat simulator is mounted on a base member for movement relative thereto. The surface of the base member adjacent to the simulator is provided with a window through which an instruction chart is visible. The chart is subdivided into quadrants containing sailing terminology, so that manual movement of the simulator uncovers quadrants of the chart, thereby instructing the student as to the terminology for describing the condition of the simulator and, by color coding the quadrants, the student is advised of the consequences of the condition of the simulator.

3,570,141
EDUCATIONAL DEVICE FOR TEACHING SOLUBILITY
Jerry N. Koral, 34 Duke Drive, Stamford, Conn. 06905
Filed Dec. 23, 1968, Ser. No. 786,043
Int. Cl. G09b *23/24*
U.S. Cl. 35—18 **7 Claims**

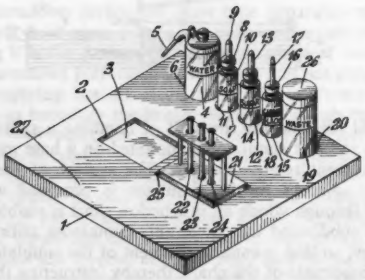
An educational device for teaching young children the scientific concept of solubility. The preferred device con-

sists basically of (1) several containers of different solid materials such as sugar, salt and chalk powder whose solubility is to be determined, (2) a number of containers, e.g. beakers for containing the liquid, e.g. water, in which the solids are to be dissolved, (3) means such as a graduated cylinder for measuring and transferring a given quantity of liquid into each beaker, (4) means such as



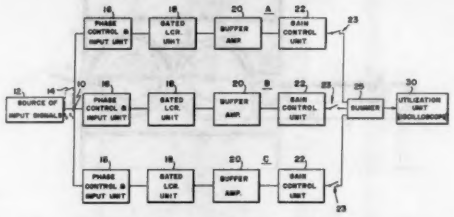
spoons for measuring and transferring given amounts of each solid from the containers into the beakers, and (5) a baseboard containing spaces for receiving the various working parts, i.e. the containers of solid material, the beakers, the spoons and the graduated cylinder. The spaces on the baseboard also provide for an ordered arrangement of the various working parts.

3,570,142
SCIENTIFIC EDUCATIONAL DEVICE FOR TEACHING WETTABILITY AND SUSPENDIBILITY
Jerry N. Koral, 34 Duke Drive, Stamford, Conn. 06905
Filed Dec. 23, 1968, Ser. No. 786,044
Int. Cl. G09b *23/24*
U.S. Cl. 35—18 **6 Claims**



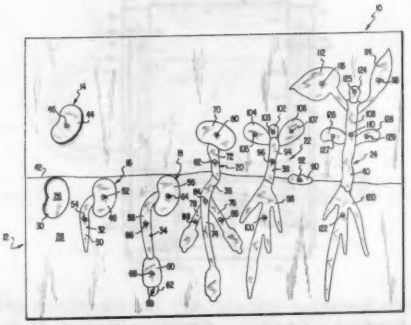
A scientific educational device for teaching, by means of an individual student experiment, the scientific concepts upon which the cleaning action of soap depends, namely the wettability of a surface by a liquid and the suspendibility of solid particles in a liquid. The preferred device consists of a baseboard containing containers for water, soap solution, non-surface active (e.g. sugar) solution and finely divided solid matter; a set of test tubes and sheets of non-wettable paper. The baseboard has recesses therein for locking each of the above component parts of the device into an ordered arrangement, thereby facilitating the teaching process and acting as a source of error control.

3,570,143
WAVEFORM SIMULATOR
T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration, in respect to an invention of Charles D. Moore, Poway, and John H. Malmberg, Del Mar, Calif.
Filed Nov. 8, 1968, Ser. No. 774,265
Int. Cl. G09b *23/18*
U.S. Cl. 35—19 **3 Claims**



An apparatus for simulating a waveform consisting of a mixture of exponentially damped sine waves is described. The apparatus generates a series of damped sine waves of variable amplitude, frequency, damping factor and phase. These waveforms are added and displayed on an oscilloscope. Their parameters are adjustable to obtain a complex waveform which simulates a curve to be analyzed.

3,570,144
TEACHING PUZZLE
Denyse C. McNutt, 19 Alexandria Drive, Oxon Hill, Md. 20021
Filed June 11, 1969, Ser. No. 832,134
Int. Cl. G09b *23/28*; A63f *9/10*
U.S. Cl. 35—20 **6 Claims**

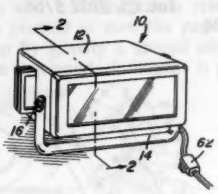


A teaching puzzle and method are described to acquaint an individual with the life cycle of a living organism. A puzzle board is provided with spaced cut-outs which are shaped and sized to receive a different puzzle piece representative of a different stage of development in the life cycle of a living organism. A plurality of puzzle pieces are provided to fit within the spaced cut-outs and represent different stages of development in the life cycle of the organism.

3,570,145
TEACHING AID
Joseph E. Hickey, 174 Eaton Ave., Meriden, Conn. 06450
Filed Jan. 24, 1969, Ser. No. 793,653
Int. Cl. G09b *17/00*
U.S. Cl. 35—35 **4 Claims**

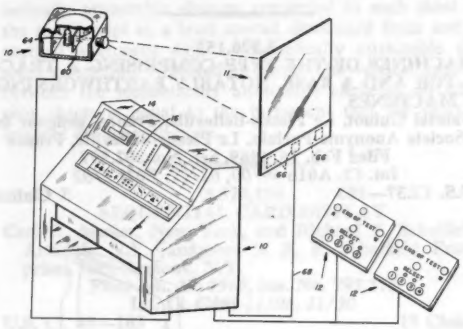
A teaching aid including a slide viewer having two slide tracks in the interior of the viewer thereby permitting

the insertion of two overlying indicia bearing slides or cards. Character or word recognition is tested and practiced by having a student insert a second card, identical



to a first positioned card so that congruity is effected. Gate means is mounted in each track so that the cards are insertable in one direction only.

3,570,146
SYSTEM FOR AUTOMATICALLY TESTING APPLICANTS
John R. Golden, Tulsa, Okla., assignor to Gemco, Inc., Tulsa, Okla.
Filed July 3, 1969, Ser. No. 838,790
Int. Cl. G09b 7/06
U.S. Cl. 35—48 **5 Claims**

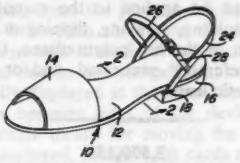


This invention relates to a system for automatically testing applicants. More particularly, the invention relates to a system for automatically testing applicants, including a projecting means for sequentially displaying test questions or a scene or situation to which the questions relate, each test question displaying simultaneously a plurality of answers, all but one of which are incorrect, a plurality of applicant stations having provisions for indicating a selection of each of the possible answers to each question, means of recording the response given by each applicant, and means of automatically disabling applicant stations individually, each at the termination of a preselected number of questions presented, thereby enabling applicants to begin and end test sessions at staggered periods.

3,570,147
CONVERTIBLE SHOE
Winton C. Chiu, 1901 E. 23rd St., Oakland, Calif. 94606
Filed Jan. 15, 1969, Ser. No. 791,242
Int. Cl. A43b 3/12
U.S. Cl. 36—2.5 **7 Claims**

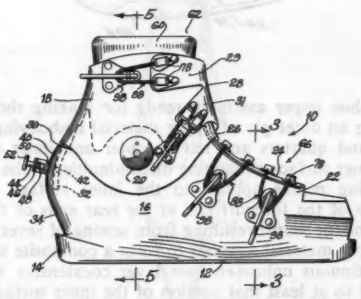
A shoe construction convertible from a sandal-type which does not include a rear heel engaging component to a shoe having a sling engaging the heel of the wearer.

The present invention generally relates to shoe structures and more particularly a shoe structure in which the heel engaging sling thereof is readily removably



attached to the shoe to enable the shoe to be converted between the sandal-type having no heel engaging component at the rear thereof and a shoe of conventional construction including a heel engaging sling.

3,570,148
SKI BOOT CONSTRUCTION
Gerard E. Morgan, Lake Forest, Ill., assignor to Riddell, Inc., Des Plaines, Ill.
Filed Aug. 21, 1969, Ser. No. 851,936
Int. Cl. A43b 23/00
U.S. Cl. 36—2.5 **14 Claims**



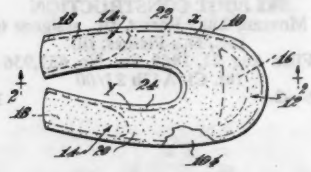
A ski boot having a body portion and a pivotally connected ankle section. The structure permits flexion and extension of the ankle with the movement taking place about two separate axes, one axis positioned on one side of the shoe corresponding with the location of the lateral malleolus bone and the other axis on the opposite side corresponding with the location of the medial malleolus bone. A limiting device is associated with the ankle section to determine the allowable extent of pivotal movement, and the limiting device is adjustable to provide the most beneficial conditions for beginners as well as more experienced skiers. The invention also provides securing means for tightening the boot around the foot, the securing means including a band having its opposed ends secured to one boot portion and a locking member for the loop of the band. The opposed ends of the band are adjustably attached so that tightening or loosening of the band can be accomplished after the loop is locked in place.

3,570,149
COATED SHOE
Herbert Kogert and Johann Schwab, Vienna, Austria, assignors to Semperit Osterreichisch-Amerikanische Gummiwerke Aktiengesellschaft, Vienna, Austria
No Drawing. Filed Sept. 23, 1968, Ser. No. 761,854
Claims priority, application Austria, Sept. 22, 1967, A 8,658/67
Int. Cl. A43b 00/00
U.S. Cl. 36—2.5 **3 Claims**

The present invention relates to a shoe whose upper consists of one or more textile layers (possibly coated with rubber or plastics) and of a sole joined to the upper,

the whole shoe being coated with a cohesive polyurethane layer which has substantially the same thickness over the whole of the outside of the shoe. The shoe is preferably provided internally with cushion inserts. The polyurethane can be applied to the manufactured shoe by injection moulding, spraying, dipping or painting. Before application of the hot polyurethane, the cushioning material is preferably preheated and/or coated with skiver or synthetic leather.

3,570,150
SHOE UPPER ASSEMBLY
Robert B. Field, 536 Main St., Norwell, Mass. 02061
Filed Jan. 27, 1969, Ser. No. 794,174
Int. Cl. A43d *23/00*
U.S. Cl. 36—45 **34 Claims**

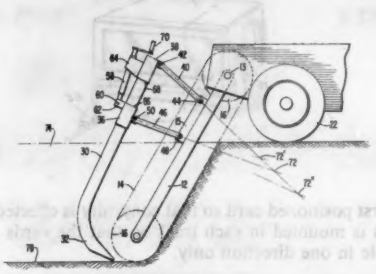


A shoe upper assembly ready for making shoes comprising an outer ply of upper material embodying a forepart and quarters and having outer and inner surfaces, the inner surface containing discontinuities in the form of stiffening means applied to the inner surface adjacent the tip of the forepart and at the rear ends of the quarters and/or seams resulting from sewing of several pieces of upper material together to form a composite structure, a continuous unbroken base layer coextensive with and united to at least that portion of the inner surface of the outer ply which will be within the interior of the finished shoe and will have contact with the foot so as to cover the surface discontinuities, and a pile of elongate fibers of predetermined length anchored at one end to the base layer with their other ends standing perpendicular to said surface.

3,570,151
STRING LASTING
Richard F. Eaton, Hanson, Mass., assignor to Compo Industries, Inc., Waltham, Mass.
Filed Nov. 6, 1968, Ser. No. 773,720
Int. Cl. A43b *23/00*
U.S. Cl. 36—46.5 **3 Claims**

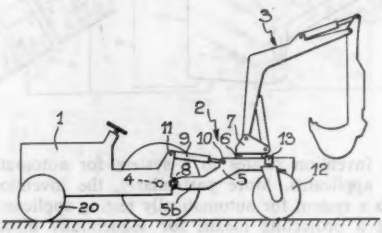
An upper having a string loosely bound to the edge of its lasting margin to enable shortening the edge by pulling on the ends of the string to effect lasting of the upper to a shoe form, and a loop extending across the upper from one side to the other at substantially the shank to effect drawing the sides of the upper at the shank toward each other.

3,570,152
CRUMBING TOOL FOR TRENCHING MACHINES
Kenneth W. Schuermann and Edwin G. Malzahn, Perry, Okla., assignors to The Charles Machine Works, Inc.
Filed Jan. 7, 1969, Ser. No. 789,452
Int. Cl. E02f *5/06*
U.S. Cl. 37—86 **8 Claims**



A crumbing tool adapted to be connected to the digging boom of a ditching or trenching machine by an adjustable four-bar linkage. When a ditch is being dug, the four-bar linkage permits the crumbing tool to enter the ditch and follow the digging boom down to the desired digging depth. In addition, the amount of down pressure applied by the crumbing tool against the bottom of the ditch is variable by adjusting the relationship between the members of the four-bar linkage.

3,570,153
MACHINES OF THE TYPE COMPRISING A TRACTOR AND A BASE, NOTABLY EARTHWORKING MACHINES
Gabriel Guinot, Le Plessis-Belleville, France, assignor to Societe Anonyme Poclain, Le Plessis-Belleville, France
Filed Feb. 26, 1969, Ser. No. 802,597
Int. Cl. A01b *69/00, 63/22;* **E02f** *5/02*
U.S. Cl.37—103 **5 Claims**



A public works machine having a tractor, a base including a chassis articulated on the tractor about at least one shaft parallel to the rear axle of the tractor, and working equipment mounted to pivot on the chassis. The chassis is articulated on a cross-beam provided with two wheels, preferably free to rotate about a substantially horizontal shaft and situated in the median longitudinal plane of the tractor. The chassis may be clamped as desired with respect to the cross-beam and the tractor.

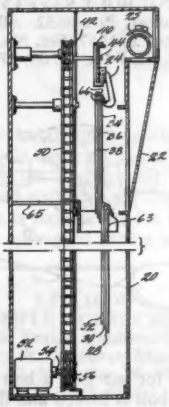
3,570,154
PAGE TURNING DEVICE
Mabel Cosenza, Lake County, Ind. (3543 Virginia St., Gary, Ind. 46409)
Filed Dec. 2, 1968, Ser. No. 780,437
Int. Cl. G09f *11/06*
U.S. Cl. 40—35 **10 Claims**

A page turning device and a manuscript for use therewith which comprises a stand for supporting the manuscript. Said stand carries a lever which is pivotally mov-

able for cyclic operation effective to turn a page 180°. The distal end of the lever is provided with a sleeve member through which a shaft is longitudinally movable. Means are provided on the sleeve member to retain the shaft in position and is momentarily released when the lever member is pivoted to turn the page 180° to allow the shaft to drop by gravity a spaced distance at which point the shaft is regripped. A magnet is provided at the

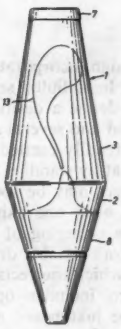
distal end of the shaft which functions to hold a magnetically attractable element connected to each sheet of the manuscript at a level spaced downward from and in vertical alignment with a magnetically attractable element connecting a preceding sheet. The vertical spacing between the magnetically attractable elements on adjacent sheets is equal to the increment that the shaft is lowered during each cycle.

3,570,155
SEQUENTIAL CARD DISPLAY
Carl G. Moller, New York, and Richard P. Scholfield, Armonk, N.Y., assignors to R. P. Scholfield Enterprises, Inc., Armonk, N.Y.
Filed Jan. 30, 1969, Ser. No. 795,275
Int. Cl. G09f *11/06, 11/30*
U.S. Cl. 40—103 **19 Claims**



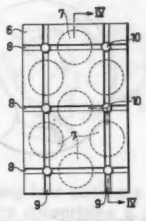
A device for sequentially displaying each of a series of display or show cards making up a complete program and for automatically repeating that program. The show cards are each supported from a dog or pivoted hook by a slotted hook stacked atop the hook of the next outermost card and the outermost card is dropped from view at spaced time intervals as the dog moves laterally and encounters the slot within the hook supporting the outermost card. After all the cards have fallen onto a lifting mechanism, they are returned together to their initial position hanging from the pivoted dog by the movement of an endless belt which also moves the dog laterally and the cycle is repeated. Both floor and counter models can be constructed and in one embodiment two sets of cards are sequentially displayed at the same time, each through a window on opposite sides of the device. In this embodiment a single means for moving the dog and lifting the cards is employed. Further, the cards may be disposed in transparent envelopes and more than one dog can be used to support a set of cards.

3,570,156
DISPLAY DEVICE
Edward C. Walker, Woodspeen, Forest Corner, Ringwood, Hampshire, England
Filed Nov. 13, 1968, Ser. No. 775,401
Claims priority, application Great Britain, Nov. 14, 1967, 51,814/67
Int. Cl. G09f *13/24*
U.S. Cl. 40—106.21 **4 Claims**



A display lamp in which the light bulb illuminates and heats components contained in a glass vessel, one of the components being a mineral oil and the other water containing an additive effective to raise the coefficient of expansion of the water.

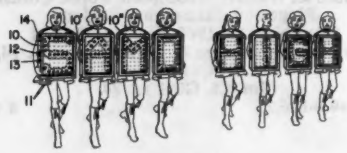
3,570,157
DISPLAY DEVICE FOR DISPLAYING ILLUMINATED SYMBOLS
Axel Erik Ludvig Ohlsson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
Filed Oct. 7, 1968, Ser. No. 765,544
Claims priority, application Sweden, Oct. 11, 1967, 13,867/67
Int. Cl. G09f *13/06*
U.S. Cl. 40—130 **6 Claims**



A display device for displaying illuminated symbols has in a solid opaque block a plurality of bores ex-

tending from one side and terminating short of the opposite side. A plurality of grooves formed in this opposite side intersect the bores opening into the same and across each other at points other than points in registry with the bores. An opaque pin is fitted in each crossing point. Light bulbs fitted in the bores illuminate the grooved sections intersecting the bores and limited by the pins. The thus illuminated groove sections represent the symbols to be displayed.

3,570,158
PORTABLE ELECTRIC SIGN FOR USE IN PARADES
George Richard Hackett, 772 Hartzell, Pacific Palisades, Calif. 90272
Filed Nov. 4, 1968, Ser. No. 773,017
Int. Cl. G09f *13/00*
U.S. Cl. 40—130 4 Claims

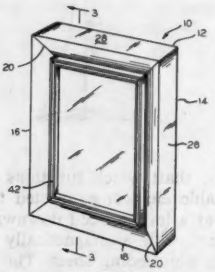


A portable electric sign incorporates a rectangular array of miniature electric light bulbs selected ones of which may be energized to define a desired symbol. The structure is battery operated and several such signs of identical construction may be readily carried by a number of persons in a parade so that by standing in side-by-side formation, words or sentences may be spelled out or displayed by the several signs, each one exhibiting a given letter or symbol. To enable changing of the symbol, a switch means in the form of a rotatable drum is mounted to the rear of the board on which the rectangular array of lights are fixed. This drum includes openings defining row means arranged to be juxtaposed a row of fixed spring contacts connected to first contacts of the light bulbs. Second contacts of the light bulbs in turn connect to one terminal of the battery and the rotatable drum connects to the other terminal. Selected ones of the holes may have screws inserted therein such that these screws only will engage selected spring contacts to effect an energization of selected lights in the array.

3,570,159
PORTRAIT DEVICE AND METHOD OF MAKING THE SAME
Robert Hugh Burgener, Jr., Salt Lake City, and Newell J. Stewart, Venice, Utah, assignors to Memorial Photo Service, Inc., Richfield, Utah
Filed Aug. 21, 1968, Ser. No. 754,288
Int. Cl. G09f *19/00*
U.S. Cl. 40—135 4 Claims

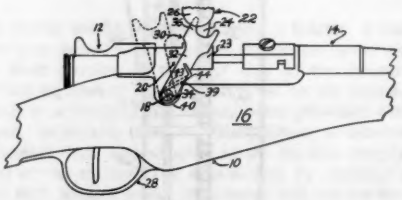
The present invention comprises a portrait indicia for securement to interment markers such as cemetery markers, tombstones, and so forth. The portrait device of the invention includes a transparent, ultraviolet-filter face, is of a plastic sandwich construction, and in a preferred form of the invention is hermetically sealed through a thermosealing method step applied to the periphery of the device. Backing the portrait included in the device is a background layer having a color, contrasting with the portrait, to give a background to the portrait of the person represented. The incapsulated sandwich structure is sealed to the interment marker or stone by means of a silicone adhesive, the latter having a characteristic of serving both as a sealing agent and also a resilient bonding agent.

3,570,160
WIDE WIDTH METAL PHOTO FRAME AND MOLDING STRIP
Maurice Spertus, Highland Park, Ill., assignor to Intercraft Industries Corporation
Filed Feb. 17, 1969, Ser. No. 799,846
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 1 Claim



A photo frame molding strip and photo frame made thereof has an intermediate abutment wall made by so forming the molding strip as to afford the abutment wall while simultaneously achieving a shadow-box effect. The marginal edges of the photograph and the covering glass pane abut the intermediate wall, thereby limiting the distance it protrudes into the molding frame sides.

3,570,161
BLOCKING BOLT SAFETY DEVICE
Herbert J. Nordhauser, Box 8652, Albany, N.Y. 12208
Filed Aug. 2, 1967, Ser. No. 657,982
Int. Cl. F41c *17/00, 17/08*
U.S. Cl. 42—70 2 Claims

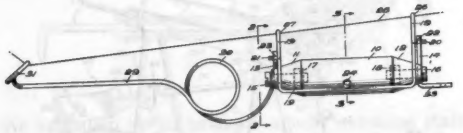


A safety device for use with a bolt action rifle or carbine, wherein the bolt is locked and unlocked by manual operation of a handle, the device having an elongated flat body portion pivotally mounted at one end thereof externally on the receiver, the other end having a yoke receiving the handle for retention therein when the safety is "on," and a spring to return the device automatically to "off," whenever the handle is manipulated to fully lock the bolt.

3,570,162
TELESCOPING AUXILIARY GUN STOCK ATTACHMENT FOR FIREARMS
Jack Suddarth, Comins, Mich. 48619
Filed Nov. 26, 1968, Ser. No. 778,967
Int. Cl. F41c *23/00*
U.S. Cl. 42—72 **10 Claims**

This telescoping auxiliary gun stock attachment has a mounting plate or rearward bracket which is secured to the end of the remaining portion of the shortened regular gun stock of the rifle or other firearm. Extending forward from the mounting plate with its axis offset to the left from the axis of the rifle barrel to avoid conflict with the magazine cartridge clip holder is an elongated tube to the forward end of which is secured an upwardly-inclined and also similarly-offset rod or forward bracket, the upper end of which is secured to the forward sling swivel of the firearm. Telescopingly mounted within the tube is the stem of an auxiliary gun stock having a perpendicularly-bent approximately D-shaped auxiliary butt loop. The stem is an elongated rod carrying a cross pin which projects through and slides in an elongated slot in the tube and is notched at two locations to receive the detent lug on the end of a spring detent arm to hold the auxiliary stock in its extended and retracted positions respectively. This invention enables the firearm to be packed into a smaller space for transportation or storage than a conventional firearm.

3,570,163
FISHING LINE RETRIEVER
Alfred C. Conder, 2100 Toll Gate Road, Huntsville, Ala. 35801
Filed May 7, 1969, Ser. No. 822,397
Int. Cl. A01k *97/00*
U.S. Cl. 43—17.2 **8 Claims**

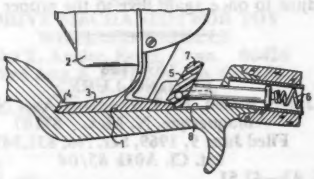


A weighted body member is provided at each end thereof with a pivotally mounted loop. A spring arm projects forwardly from the leading edge of the body and terminates in a looped striking head disposed at an acute angle. A fishing line is received by the loops for guiding the striking head to a snagged fishing article.

3,570,164
MULTIPLE ACTION ROD
Howard B. Tozier, Kenilworth, N.J.
(12 Canterbury St., Andover, Mass. 01810)
Filed July 23, 1968, Ser. No. 746,872
Int. Cl. A01k *87/00*
U.S. Cl. 43—18 **3 Claims**

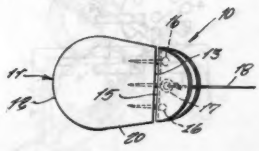
An elongated hollow rod member has a main rod portion, a tip portion and a butt portion. The hollow rod member is adapted to receive a flexible core member within the hollow space provided inside the rod member. The internal core member is adapted to be moved to and from the tip portion of the rod. Optionally, the total rod assembly may be provided with means for adjusting the extent to which the core member extends into the tip portion of the rod. The fishing rod assembly permits the use of a stiff action rod for casting and a fast action rod useful for imparting natural movement to the lure employed by the fisherman.

3,570,165
REEL FASTENING MEANS ON FISHING-ROD HANDLES
Åke Eugen Murvall, Svangsta, Sweden, assignor to Abu Aktiebolag, Svangsta, Sweden
Filed Dec. 16, 1968, Ser. No. 783,861
Claims priority, application Sweden, Dec. 22, 1967, 17,703/67
Int. Cl. A01k *87/06*
U.S. Cl. 43—22 **3 Claims**



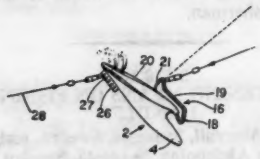
A fastening device for a fishing reel on a rod handle comprising a flat supporting surface for the base of the reel foot, an abutment recess at the forward end of the supporting surface to be engaged by the forward end of the reel foot and at the rear end of the supporting surface a locking member displaceable longitudinally of the supporting surface and actioned by a spring to press the rear end of the reel foot forwardly and downwardly onto the supporting surface. The supporting surface has at least one projection forming a stop abutment for the rear edge of the reel foot to prevent the locking member from being pushed back by the reel foot when the reel is subjected to a backwards acting force.

3,570,166
SPORT FISHING LURE
Norman H. Borton, 554 Lake St., Adrian, Mich. 49221
Filed Nov. 29, 1968, Ser. No. 779,957
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.03 **1 Claim**



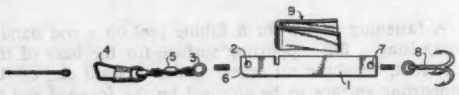
A novel sport fishing lure having a unique new action in swimming, the lure comprising a relatively flat body having the appearance of a flat fish, such as a flounder, and the body having a pivotable scoop hingedly secured thereto so as to create an up-and-down swimming action.

3,570,167
SUBMERGIBLE HYDROPLANER
Daniel A. Smith, 291 Madrone Ave., Santa Clara, Calif. 95051
Filed Nov. 25, 1968, Ser. No. 778,408
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.06 **20 Claims**



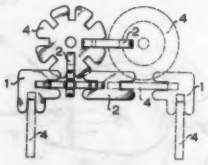
A submergible hydroplaner for attachment to a fishing line in front of the baited hook. A wing on the hydroplaner may be shifted between positive and negative angles of attack to tow the bait to the desired depth while trolling, and bring the hydroplaner and attached fish to the surface after a fish has taken the bait. If the fish is lost while being brought to the surface, the hydroplaner will readjust to once again dive to the proper depth.

3,570,168
FISHING LURE
James Patten, 1003 Woodland Ave. NW., Albuquerque, N. Mex. 87107
Filed June 9, 1969, Ser. No. 831,347
Int. Cl. A01k *85/04*
U.S. Cl. 43—42.51 **6 Claims**



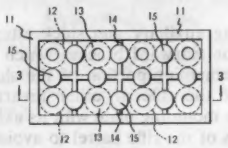
A fishing lure of sheet material including a body portion, means at one end for attachment to a fishing line, means at the other end for attachment to a hook means and wing elements on opposite sides of the body portion having their trailing edges flared or inclined relative to the body so as to impart a spinning action to the lure as it is pulled through the water.

3,570,169
CONSTRUCTIONAL TOY WITH SLOTTED INTERFITTING PARTS
Theodor Jacob, 110 Kinzigheimer Weg, Hanau am Main, Germany
Filed Apr. 22, 1969, Ser. No. 818,246
Int. Cl. A63h *33/00*
U.S. Cl. 46—16 **5 Claims**



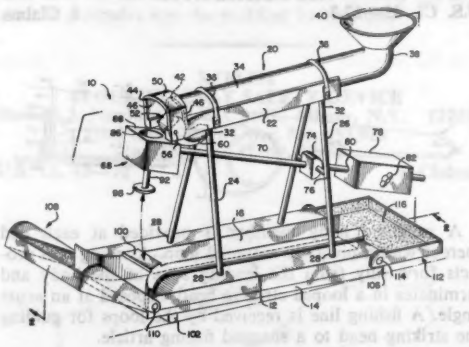
A constructional toy with a large number of slotted and unslotted interfitting parts of different shapes and sizes. Some of said parts are in the form of flat members having open-ended slots, whereas other are hollow base members provided with slot-shaped recesses. All parts are so contrived that edge portions of the flat members can be fitted into said open-ended slots in other flat members or into said slot-shaped recesses in the base members.

3,570,170
TOY BLOCK WITH INTERNAL LATTICE AND LOBES
Yoshihiro Kishi, 2–7 Kuramae 1-chome, Daito-ku, Tokyo, Japan
Filed Nov. 13, 1968, Ser. No. 775,298
Claims priority, application Japan, Nov. 18, 1967, 42/97,170
Int. Cl. A63h *33/08*
U.S. Cl. 46—25 **1 Claim**



A toy building block has a rectangular box-like body with open bottom and integral top and side walls. Projections extend outwardly from the top wall. Ribs inside the body are joined to each other and to the walls of the body at right angles to define rectangular cells. Cylindrical lobes integrally formed with the ribs extending laterally into adjacent cells. Edges of the ribs are coplanar and spaced inwardly of the flat bottom edge of the body of the block. The lobes have free cylindrical end portions extending beyond the ribs and terminating short of the plane of the bottom edge of the body of the block.

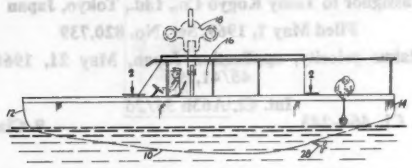
3,570,171
AMUSEMENT DEVICE
Alvin L. Shook, 301 S. Pearl, Salem, Ill. 62881
Filed Jan. 24, 1969, Ser. No. 793,753
Int. Cl. A63h *29/08*
U.S. Cl. 46—42 **6 Claims**



A ball amusement device including a declined chute overlying a base and having a discharge end guarded by a pivoted catch that permits only one by one gravitational discharging of balls loaded in the chute and a ball transfer lever pivotally mounted intermediate its ends for free vertical swinging movement between the base and the chute with the lever having a ball receiver on one end and a counter-weight on its other end and being moved by the counter-weight to a position wherein the receiver strikes the catch to effect release and transfer of one ball from the chute into the receiver with the thusly weighted receiver moving downwardly toward the base and having a slidable discharge plunger that, upon striking the base,

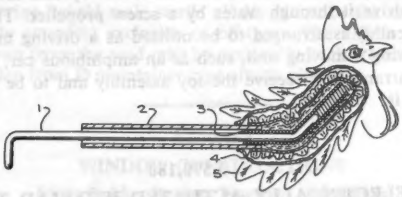
ejects the ball therefrom, the lever operating in continuous seesaw movement to transfer the balls from the chute to the base with the balls collecting in a collection tray mounted on one end of the base under an input hopper end of the overhead chute.

3,570,172
TOY MOTORBOAT
Joseph Lombardo, 1103 1st Ave., New York, N.Y. 10021
Filed Dec. 12, 1967, Ser. No. 689,872
Int. Cl. A63h *23/04*
U.S. Cl. 46—93 **2 Claims**



A toy motorboat having propeller means operated by a manually wound spring motor whereby gear ratios can be readily and quickly changed to vary the torque and speed of the rotation of the propeller means and thus vary the operation of the boat in water.

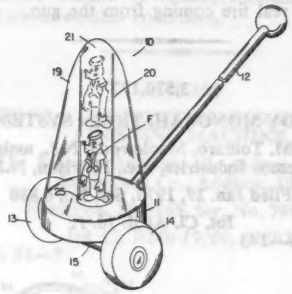
3,570,173
FLEXIBLE FIGURE TOY SLEEVE MEANS WITH MEANS FOR MOVING SAME
William Hayes Case, 308 S. 2nd St., Marshalltown, Iowa 50158
Continuation of application Ser. No. 647,051, June 19, 1967, which is a continuation-in-part of application Ser. No. 442,623, Mar. 25, 1965. This application Dec. 31, 1968, Ser. No. 789,659
Int. Cl. A63h *3/00*
U.S. Cl. 46—124 **16 Claims**



An animation device having a tubular mounting shaft with a hollow flexible life-form sleeve-cover protruding from one end thereof and a flexible filler sleeve-cover within the said life-form sleeve-cover and a flexible sleeve within said filler sleeve-cover. The shaft, cover and sleeve are slidably connected to an axis control rod which is slidably and rotatably mounted within the said tubular mounting shaft so that relative sliding and/or rotational movement between the said control rod and the said mounting shaft will impart a unique and life-like movement as well as a change in flexibility to said life-form sleeve-cover and coextensive filler sleeve-cover and sleeve.

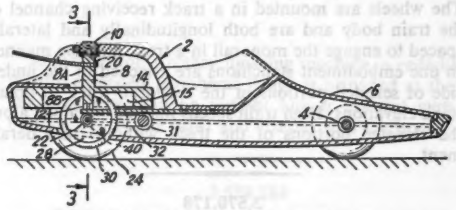
3,570,174
WHEELED ACTION TOY
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840
Filed Nov. 13, 1969, Ser. No. 876,326
Int. Cl. A63h *11/06*
U.S. Cl. 46—205 **4 Claims**

A wheeled push toy is provided with means for propelling a small object, such as an elongated simulated figure, upwardly as the toy is pushed. The object freely travels in an elongated tubular housing and is kicked



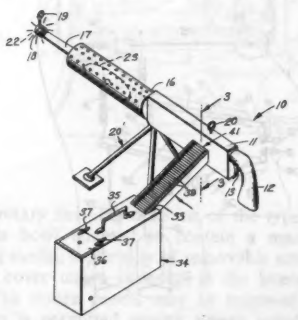
upwardly therein upon release of a spring actuated plug or platform at the lower end of said tubular housing, thus simulating a figure jumping on a trampolene.

3,570,175
DRIVE MECHANISM FOR TOY WHEELED VEHICLE
John T. Angier, Essex, Conn. 06426
Filed Aug. 8, 1967, Ser. No. 659,155
Int. Cl. A63h *17/00*
U.S. Cl. 46—206 **7 Claims**



A drive mechanism for a toy wheeled vehicle with a vertical starting shaft having an aperture through which a string or cord can be inserted and then wrapped around the starting shaft.

3,570,176
TOY MACHINE GUN
Henry J. Palmer, 699 N. Broad St., Philadelphia, Pa. 19123
Filed Dec. 13, 1968, Ser. No. 783,689
Int. Cl. A63h *33/26*
U.S. Cl. 46—227 **5 Claims**



A toy which simulates a real machine gun having a transistorized amplifier with a cartridge needle and a

continuous play record which produces the actual sound of real machine gun fire. The mechanism of this device also includes synchronous light-bulb arrangement in order to simulate real fire coming from the gun.

3,570,177

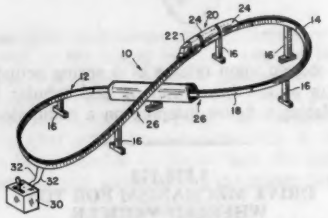
TOY MONORAIL TRAIN SYSTEM

Patrick M. Tomaro, Maplewood, N.J., assignor to Remco Industries, Inc., Harrison, N.J.

Filed Jan. 29, 1970, Ser. No. 6,880

Int. Cl. A63h *18/12*

U.S. Cl. 46—243 **7 Claims**



A toy train system is described with a monorail track. A train adapted to move on this track is provided with lateral supporting and vertical supporting wheels which ride respectively on side and upper surfaces of the track. The wheels are mounted in a track receiving channel of the train body and are both longitudinally and laterally spaced to engage the monorail in a track hugging manner. In one embodiment stanchions are attached to the underside of selected portions of the monorail track to obtain track elevations. High train speeds may be sustained along the elevated portions of the track without train derailment.

3,570,178

PRODUCING MOVEMENTS IN MODEL FIGURES

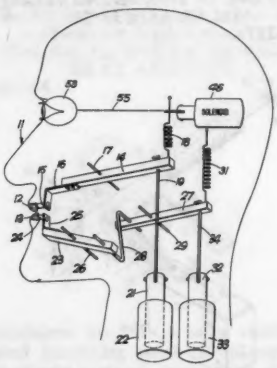
Charles William Green, Bushey, England, assignor to Halas and Batchelor Cartoon Films Limited, London, England

Filed Jan. 6, 1969, Ser. No. 789,297

Claims priority, application Great Britain, Jan. 11, 1968, 1,648/68

Int. Cl. A63h *33/26*

U.S. Cl. 46—243 **6 Claims**



In a model figure for producing related sound and movement effects the lips are movable and are each connected to an electromechanical transducer through a pivoted lever. Electric signals corresponding to sound are averaged by an averaging circuit and applied to the transducers so that the extent of movement of the lips by the transducers corresponds to the sound from which the electric signals are derived. The electric signals also operate a loud speaker.

3,570,179

SWIMMING TOY ASSEMBLY

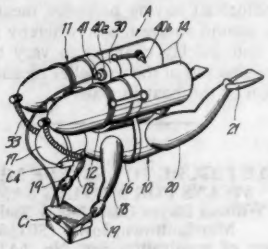
Kazumi Yamakawa, Katsushika-ku, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan

Filed May 1, 1969, Ser. No. 820,739

Claims priority, application Japan, May 21, 1968, 43/41,794

Int. Cl. A63h *33/26*

U.S. Cl. 46—243 **9 Claims**



A swimming toy assembly which comprises a swimmer body and a power unit, the power unit being detachably connected to said swimmer body and arranged to drive it through water by a screw propeller. The toy assembly is arranged to be utilized as a driving unit for driving a moving unit, such as an amphibious car, which is arranged to receive the toy assembly and to be driven by it.

3,570,180

ELECTRICALLY ACTUATED WHEELED TOY

Nobuo Oda, Tokyo, Japan, assignor to Gunze Sangyo Kabushiki Kaisha, Tokyo, and Omega Denshi Kogyo Kabushiki Kaisha, Yokohama, Japan

Filed Feb. 19, 1968, Ser. No. 706,498

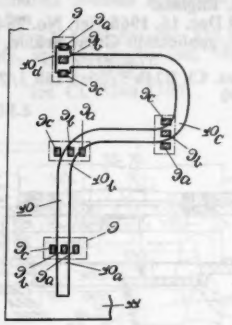
Claims priority, application Japan, Mar. 1, 1967, 42/12,549

Int. Cl. A63h *33/26*

U.S. Cl. 46—244 **7 Claims**

An electrically actuated wheeled toy has a pair of driving wheels independently driven by respective electric motors. Each motor has a respective energizing circuit connected to a source of electric potential on the vehicle. A sensing member at the front of the vehicle carries three contacts for sliding on a surface on which a runway is drawn or imprinted in electrically conductive material. The runway has a width such that normally only the center sli ing contact engages the runway but, on a curved portion of the runway, the center contact and one of the two outer contacts are electrically interconnected. This effects de-energization of one of the motors so that the vehicle automatically turns to follow the curvature

of the runway. A terminal portion of the runway is laterally extended so that all three sliding contacts are



electrically interconnected, effecting de-energization of both motors.

3,570,181

HYBRID ALFALFA PRODUCTION

William H. Davis, West Bend, Wis., assignor to L. Teweles Seed Company, Milwaukee, Wis.

No Drawing. Filed Jan. 23, 1968, Ser. No. 699,805

Int. Cl. A01h *1/02*

U.S. Cl. 47—58 **10 Claims**

Seed capable of growing hybrid alfalfa is efficiently produced by the selective harvesting of the same from a cytoplasmic male sterile alfalfa seed parent which has been crossed with pollen from a D maintainer type alfalfa plant. The D maintainer type plant utilized in the process is selected so as to cause the formation of seed on the cytoplasmic male sterile seed parent which is capable of growing hybrid male sterile alfalfa plants to the substantially complete exclusion of off-types. The alfalfa plants grown from the seed may be optionally back-crossed with pollen from D maintainer type alfalfa plants.

3,570,182

WINDOW CONSTRUCTIONS

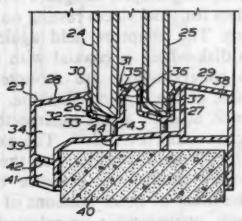
Bjorn Bakke, Bergen, Norway, assignor to A. Knag A/S, Bergen, Norway

Filed Dec. 18, 1968, Ser. No. 784,765

Claims priority, application Norway, Dec. 20, 1967, 171,071

Int. Cl. E06b *7/14, 3/46*

U.S. Cl. 49—408 **8 Claims**



A window construction in which a slidable window is mounted in a frame adapted for location in an outer building wall, the frame defining at the inside face of the window a chamber which enables the pressure on both sides of the window to remain substantially the same under various weather conditions.

3,570,183

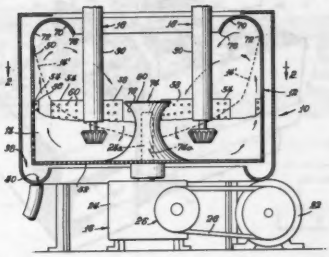
BOWL CONSTRUCTION FOR ROTARY FINISHING MACHINE

Achille K. Ferrara, Addison, Ill., assignor to Ultramatic Equipment Co., Addison, Ill.

Filed Feb. 11, 1969, Ser. No. 798,321

Int. Cl. B24b *19/00, 31/02*

U.S. Cl. 51—7 **11 Claims**



In a bowl for a rotary finishing machine, a radially inwardly extended peripheral flange is provided at the upper periphery, and an upright hub is integral with the bottom wall of the bowl and coaxial with the bowl.

3,570,184

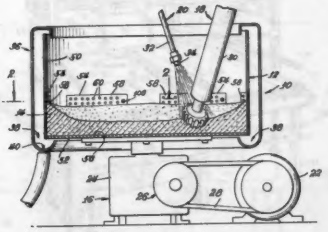
ROTARY FINISHING MACHINE HAVING REMOVABLE SCREEN PANELS

Achille K. Ferrara, Addison, Ill., assignor to Ultramatic Equipment Co., Addison, Ill.

Filed Feb. 19, 1969, Ser. No. 800,387

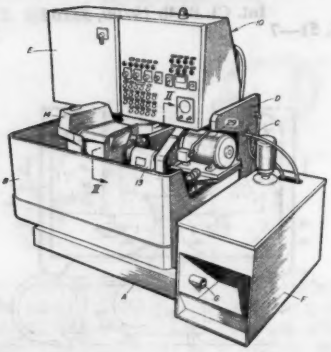
Int. Cl. B24b *19/00, 31/02*

U.S. Cl. 51—7 **10 Claims**



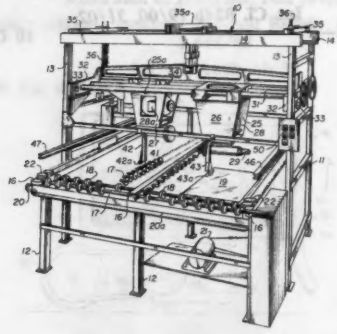
In a rotary finishing machine of the type comprising a rotatable bowl adapted to contain a mass of abrasive finishing media, a plurality of removable screen panels are used to cover screen openings in the lateral wall of the bowl. The screen panels may be removed for cleaning. Selection is permitted among screen panels having perforations of various sizes according to the size and type of abrasive finishing media to be used in a given machine operation.

3,570,185
GRINDING MACHINE
Herbert R. Uhtenwoldt, Worcester, Frederick A. Hohler, Holden, and Robert G. Hatstat, Rutland, Mass., assignors to The Heald Machine Company, Worcester, Mass.
Continuation-in-part of application Ser. No. 759,811, Sept. 9, 1968, which is a continuation of application Ser. No. 451,712, Apr. 29, 1965. This application July 9, 1969, Ser. No. 840,324
Int. Cl. B24b 9/00, 49/00, 51/00
U.S. Cl. 51—37 3 Claims



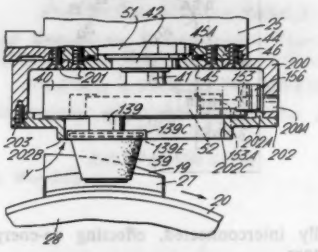
This invention relates to a grinding machine and, more particularly, to apparatus arranged to generate a surface of revolution by the abrasive method.

3,570,186
GRINDING MACHINE FOR GROOVING GLASS
Edwin J. Kulwicki, Toledo, Ohio, assignor to Sun Tool Machine Co., Toledo, Ohio
Filed Apr. 18, 1969, Ser. No. 817,449
Int. Cl. B24b 7/00
U.S. Cl. 51—78 6 Claims



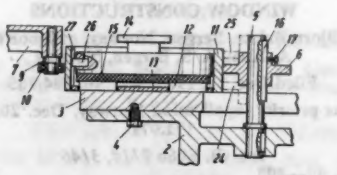
A grinding machine for grooving glass surfaces to provide for fingerpulls, miters and plate grooves, especially for mirrors, comprising a grinding head including a motor and a motor driven spindle for carrying a grinding tool, e.g. a grinding wheel, means for selectively moving the grinding head horizontally and vertically, and control means contactable with the glass workpiece for raising and lowering the grinding head into and out of contact with a surface of the glass workpiece.

3,570,187
PLANETARY MECHANISMS WITH FRICTIONAL DRIVING MEANS
Edward George Preston and Philip Arthur Maw, London, England, assignors to Molins Machine Company Limited, London, England
Filed Dec. 16, 1968, Ser. No. 784,036
Claims priority, application Great Britain, Dec. 15, 1967, 57,038/67
Int. Cl. B24b 3/00; F16h 1/28
U.S. Cl. 51—90 5 Claims



A planetary mechanism in which the planet member is rotated by frictional engagement between a stationary annulus and a driving rim carried resiliently by the planet member. Under stationary conditions there is a clearance between the driving rim and the annulus. On rotation, centrifugal force displaces the rim radially relative to the planet member, so taking up the clearance and providing a drive. In the stationary condition there is no side thrust on the planet member. The planet member may be a grinder wheel for a cigarette machine cut-off.

3,570,188
LAPPING MACHINE
Hellmut Ebner, Mettmann, Rhineland, Germany, assignor to Peter Wolters Kratzenfabrik und Maschinenfabrik, Mettmann, Germany
Filed Apr. 12, 1968, Ser. No. 720,922
Claims priority, application Germany, Apr. 15, 1967, W 43,767
Int. Cl. B24b 5/00
U.S. Cl. 51—129 13 Claims



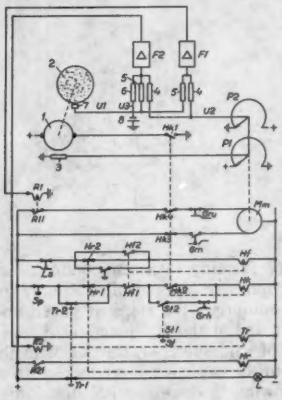
A lapping machine wherein a single ring-shaped rotary lap supports several ring-shaped adaptors which accommodate work holders for workpieces resting on the lapping surface of the lap. The adaptors held against rotation with the lap by a disk which is coaxial with the lap and by one or more rollers which are mounted on arms carried by the frame of the lapping machine. The peripheral surface of each adaptor abuts against the disk and against the respective roller or rollers. The axial position of the disk and/or the axial positions of the rollers are adjustable to thereby change the pressure between the workpieces and the inner or outer portions of the lapping surface. In this way, uneven wear on selected portion or portions of the lapping surface can be eliminated or intentionally brought about by appropriate adjustment of the disk and/or rollers.

3,570,189

CONTROL ARRANGEMENT FOR GRINDING MACHINES FOR PREVENTING OPERATION UNDER DANGEROUS CONDITIONS

Olle Keding and Per-Ola Fahlman, Vasteras, Sweden, assignors to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed May 1, 1968, Ser. No. 725,870
Claims priority, application Sweden, May 5, 1967, 6,336/67
Int. Cl. B24b *5/00*
U.S. Cl. 51—134.5 5 Claims



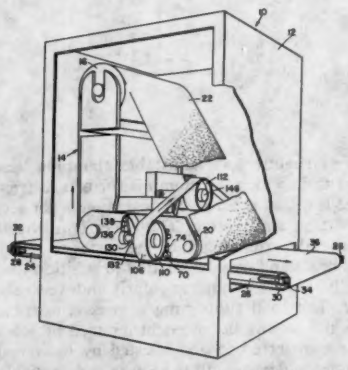
In a protective device for a grinding machine having a motor driving a grinding wheel, the speed of rotation of the grinding wheel is maintained substantially inversely proportional by a relay which is responsive to the difference between two signals which vary with the diameter and speed respectively. A second relay is furnished additionally with a constant signal and opens a switch in the circuit to the motor when the difference between the first two signals is greater than the third signal. A time-delay relay is provided which, when the motor starter button is operated, bypasses this switch for a long enough time to allow the motor to come up to minimum speed.

3,570,190

BELT SANDING AND POLISHING MACHINE

Richard D. Rutt, Wilson, and Paul W. Inskeep, Jr., Youngstown, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed Feb. 29, 1968, Ser. No. 709,435
Int. Cl. B24b *21/06*
U.S. Cl. 51—141 10 Claims



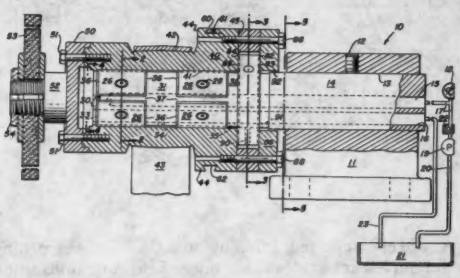
A belt sanding and polishing machine having a contact roll for applying pressure to an endless abrasive belt for rough sanding a workpiece. An air platen assembly is positioned rearwardly of the contact roll for applying pressure to said abrasive belt to produce a fine finish on the workpiece. A secondary belt moves in a direction of travel normal to the direction of movement of the abrasive belt and has an active run located between said abrasive belt and a graphitized strip of cloth bearing against the bottom of the platen assembly.

3,570,191

HYDROSTATIC SPINDLE

Alan F. Williams, Palo Alto, Calif., assignor to Tydeman Machine Works, Inc., Redwood City, Calif.

Filed Apr. 22, 1969, Ser. No. 818,364
Int. Cl. B24b *5/10;* F16c *35/08*
U.S. Cl. 51—134.5 19 Claims



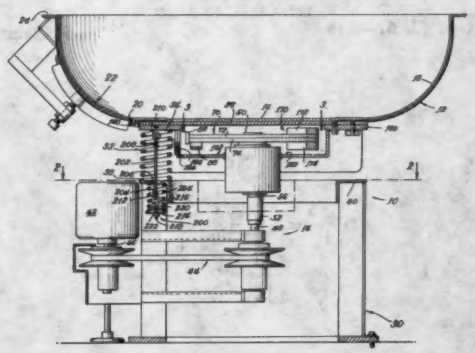
A construction for a hydrostatic spindle journal with an included thrust bearing employs a stationary shaft having a plurality of hydrostatic fluid support bearing pads milled in its outer surface with each bearing pad supplied with a source of pressurized fluid and a tubular sleeve rotatably mounted on the shaft which carries the working element of the spindle. The shaft also includes an integral thrust disc which is received in a circular recess in the tubular sleeve and provides, through similar bearing pads in its radial surfaces, an axial hydrostatic thrust bearing for the tubular sleeve.

3,570,192

VIBRATORY FINISHING MACHINE HAVING GENERALLY CIRCULAR BOWL

Achille K. Ferrara, Addison, Ill., assignor to Ultramatic Equipment Company, Addison, Ill.

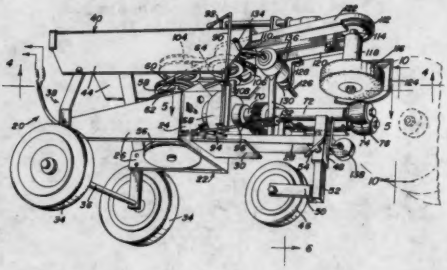
Filed Feb. 24, 1969, Ser. No. 801,573
Int. Cl. B02c *17/08;* B24b *31/00*
U.S. Cl. 51—163 14 Claims



Vibratory motion is imparted to a bowl through a cylindrical hub coupled to a drive shaft for conjoint rotation with the shaft in eccentric relation to the shaft and cylindrical cam means eccentric to the hub. Bearing means

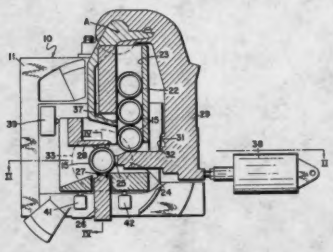
are utilized intermediate the cam means and inner surface portions of a housing connected to the bowl to permit rotation of the cam means with respect to the housing.

3,570,193
MOBILE IMPLEMENT SHARPENING MACHINE
Francis T. Barrett, R.R. 1, Box 165, Pocahontas, Iowa 50574
Filed Aug. 1, 1969, Ser. No. 846,871
Int. Cl. B24b *23/00*
U.S. Cl. 51—173 16 Claims



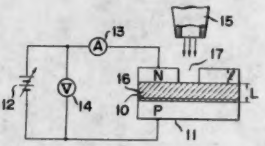
A wheel supported grinding machine for sharpening round implement blades either under field conditions when the blades are mounted on the implement or under shop conditions when the blades are removed from the implement. The machine includes a depth gauge roller and a pair of cooperating workpiece driving rollers which position the disk or blade to be sharpened in a proper orientation relative to the grinding wheel. The grinding wheel itself is adjustably mounted for selective cushioned engagement with the opposite sides of the workpiece. The wheel support for the machine is adapted so as to actually allow the front of the machine to move so as to follow irregularities in the blade during the sharpening thereof, and thereby prevent binding. The machine in its shop position is in the nature of a highly stable unit provided with a three-point support.

3,570,194
WORKHEAD
Frederick A. Hohler, Holden, and Richard T. Knorring, Worcester, Mass., assignors to The Heald Machine Company, Worcester, Mass.
Filed Sept. 27, 1968, Ser. No. 763,295
Int. Cl. B24b *5/06*
U.S. Cl. 51—215 9 Claims



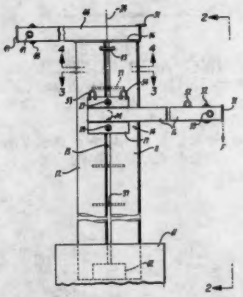
This invention relates to a workhead and, more particularly, to apparatus for holding workpieces in a machine tool, rotating them and providing for unloading finished workpieces and introducing an unfinished workpiece in its place.

3,570,195
METHOD OF FORMING A RECESS IN A SEMICONDUCTOR SUBSTRATE HAVING AT LEAST ONE PN JUNCTION
Michio Otsuka, Tokyo, and Syuji Sugioka, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Nov. 13, 1968, Ser. No. 775,316
Claims priority, application Japan, Mar. 21, 1968, 43/17,951
Int. Cl. B24c *1/00*
U.S. Cl. 51—320 5 Claims



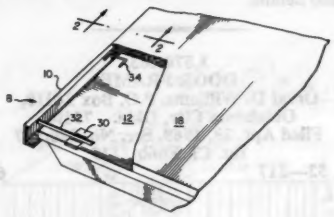
A method of forming in a semiconductor substrate a recess whose depth can be controlled exactly to a desired extent, which comprises the steps of generating a depletion layer near and at the PN junction of said substrate, boring a part of said substrate starting with the exposed surface down to the depletion layer thereof so as to cause the current flowing through the PN junction to attain a certain level.

3,570,196
TOWER STRUCTURE AND ADJUSTABLE CLAMPING DEVICE
Jan K. Kunczynski, P.O. Box 2181, Olympic Valley, Calif. 95730
Filed Nov. 21, 1968, Ser. No. 777,799
Int. Cl. E04h *12/00*
U.S. Cl. 52—40 9 Claims



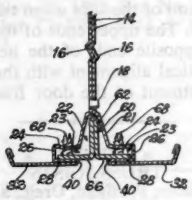
A tower structure and adjustable clamping device for use therewith in which the clamp is formed to frictionally engage the tower at selected vertical heights for securing a load supporting arm thereto. The tower is further formed with a vertically extending indexing surface against which the clamp bears and may be secured to position the arm in horizontally, vertically and angularly indexed relation to the tower. The load supporting arm is constructed in a manner which allows the moment induced by loading the arm to be transferred to and resisted by the engagement of the clamping device with the tower and particularly the indexing surface. A tower particularly suited for use as a ski lift tower is described.

3,570,197
FASCIA MOLDING DEVICE
James R. North, Aurora, Colo.
(Rte. 2, Box 101, Castle Rock, Colo. 80104)
Filed Mar. 18, 1969, Ser. No. 808,143
Int. Cl. E04b *1/34, 5/17*
U.S. Cl. 52—73 1 Claim



A fascia molding device adapted for securing along an outer edge of a balcony or other structure protruding beyond a building exterior wall comprising an elongated body portion of predetermined decorative configuration, an elongated rearwardly inclining lip portion secured along an upper edge of said body portion, a rearwardly extending flange portion secured along a lower edge of said body portion.

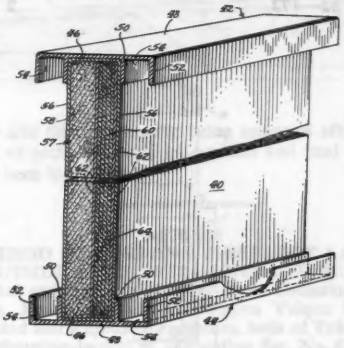
3,570,198
METALLIC STUD STRUCTURE AND STANDARD LOCATING MEANS
Richard R. Ruhnke, Skokie, Ill., assignor to Garcy Corporation
Filed Jan. 9, 1969, Ser. No. 790,026
Int. Cl. A47b *57/08, 96/04*
U.S. Cl. 52—36 5 Claims



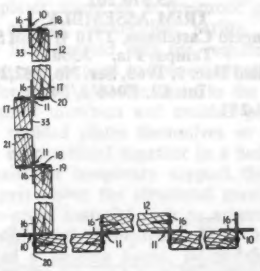
An upstanding metallic wall stud and standard assembly in which the standard assembly is adjustably positioned within the stud structure. Locating means are positioned in stud channels in which the standard assembly is positioned in keyed relation to the standard assembly. The locating means is secured to stud walls as by threaded fasteners which pass through the stud walls and through wings integral with the locating means and which are positioned within the stud structure, thereby to fix the position of the standard assembly with respect to the stud structure.

3,570,199
FIREPROOF PARTITIONS
William J. Gartner, Schaumburg, Ill., assignor to De Soto, Inc.
Continuation-in-part of application Ser. No. 702,307, Feb. 1, 1968. This application Oct. 25, 1968, Ser. No. 770,768
Int. Cl. E04b *1/76, 2/04*
U.S. Cl. 52—168 14 Claims

A partition for providing thermal insulation to a region on at least one side thereof from sources of intense heat. The partition comprises a wall member which contains within rigid outer walls a sheet-like insulating member of at least two layers. One of the layers, which faces the source of heat, comprises fibrous material having high temperature resistance, while the other layer comprises a porous carrier, preferably having heat insulating properties, containing liquid water interspersed throughout the pores of the carrier. The carrier is enclosed in a water impermeable casing which ruptures upon exposure to elevated temperatures. Typically, a plurality of wall members of the above construction abut each other to form a heat resistant wall.



3,570,200
PARTITION PANEL STRUCTURES
Carl E. Ritner, Wyomissing, and Arthur Baer, Reading, Pa., assignors to Construction Specialties, Inc., Cranford, N.J.
Filed Apr. 14, 1969, Ser. No. 815,903
Int. Cl. E04b *2/60, 2/78*
U.S. Cl. 52—122 12 Claims

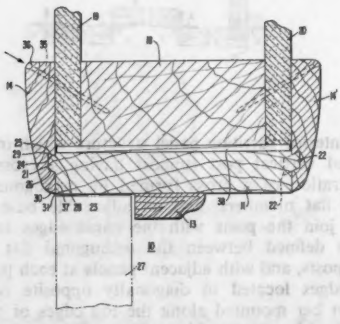


An interior partition panel structure which includes an extruded vertical post support having a cross-sectional configuration of a cross formed by orthogonally intersecting flat members, and an adjustable base member. Panels join the posts with the panel edges received in corners defined between the orthogonal flat members of the posts, and with adjacent panels at each post having their edges located in diagonally opposite corners. A transom bar mounted along the top edges of the panels is fitted with a removable cover, and a projecting rib of the transom bar serves to align the panels along their top edges. A baseboard slidably received in a slot in the bottom of the panels can be used to fill the space between the bottom of the panels and the floor.

3,570,201
DOOR STRUCTURE WITH A CLOSABLE BREATHER TUBE
Louis F. Barroero, 1585 Daniels Drive, San Leandro, Calif. 94577
Filed June 19, 1969, Ser. No. 834,628
Int. Cl. E04g 11/04; E04b 5/12
U.S. Cl. 52—172 **2 Claims**

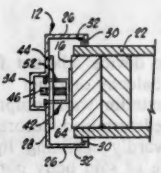
A door has two curved glass plates in spaced relation to each other. Resilient sponge strips are disposed between the glass plates adjacent the bottom and top edges of the door. Along the sides of the door, between the glass plates, are tubes having slits which communicate with the space between the glass plates. Sealing means are included about the entire periphery of the door, and the tubes contain moisture-absorbent material such as silica gel, to absorb moisture which may be sealed in between the glass plates. A breather tube is built into the door and allows atmospheric pressure into the space between the glass plates. Such breather tube allows for differences in atmospheric pressure when shipping the door, and is sealed off when the door is in a substantially stabilized condition of atmospheric pressure.

3,570,202
TRIM ASSEMBLY
Angelo Castellano, 2710 Walnut St., Tampa, Fla. 33607
Filed Dec. 9, 1968, Ser. No. 782,258
Int. Cl. E06b 1/04
U.S. Cl. 52—211 **7 Claims**



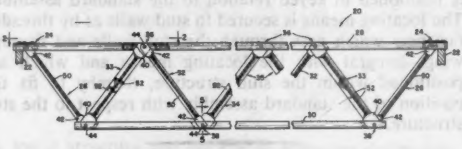
Cooperating cam-locking surfaces such as canted tongue and grooves are formed on trim and frame members such as jamb and header members of a doorway. The tongue is spaced from the finish face of the jamb a distance sufficient such that when the tongue is fitted into the groove a uniform reveal is quickly and accurately established and, simultaneously, when the trim is finished nailed in place by a nail angled in the direction of tongue and groove canting, the canted tongue and groove effect a camming and locking action of the forward edges of trim to the frame member. Consult the specification for other features and details.

3,570,203
DOOR FRAME
Orval D. Williams, P.O. Box 94010, Oklahoma City, Okla. 73109
Filed Apr. 29, 1969, Ser. No. 820,157
Int. Cl. E06b 1/19
U.S. Cl. 52—217 **6 Claims**



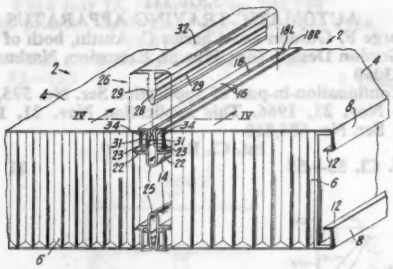
A metal frame for a door opening having stiles extending upwardly along the opposite sides of the door opening and a header extending across the top of the door opening. At least one of the stiles has an adjusting mechanism in the upper end portion thereof to react against the respective side of the wall opening and adjust the position of the respective stile and the header to provide the desired size of resulting door opening. The adjusting mechanism is constructed to provide a force on the respective stile which is spread over an appreciable area of the stile to prevent distortion of the stile when the adjusting mechanism is operated. The upper ends of the stiles are firmly secured to the opposite ends of the header to maintain the header in vertical alignment with the stiles during assembly and adjustment of the door frame.

3,570,204
TRUSS JOISTS
George R. Birkemeier, Portland, Oreg., assignor to Timber Structures, Inc., Portland, Oreg.
Continuation of application Ser. No. 749,253, July 22, 1968. This application Sept. 24, 1969, Ser. No. 860,841
Int. Cl. E04c 3/292
U.S. Cl. 52—289 **14 Claims**



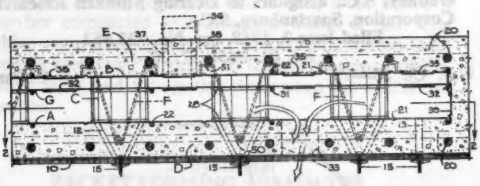
A truss joist **20** includes compression webs **33** heavier than tension webs **32** and doubled in the higher loaded portions. Joints **36** include knurled pins keyed to the webs and rotatable in the chords. Heel joints **24** include angle members extending beyond the pin **44** over the bearing wall **22** and anchored by nails **84** to the upper chord and by nails **86** to the bearing wall. A high load truss joist **100** includes two boards for each chord with cupped spring washers **160** retaining the boards on pins **134**. Heel joints **114** include vertically spacing angle members secured to the bearing wall.

3,570,205
PANEL JOINTURE
Charles Payne, Coral Gables, Fla., assignor to American Air Filter Company, Inc.
Filed Nov. 7, 1968, Ser. No. 774,016
Int. Cl. E04b 1/40, 1/66
U.S. Cl. 52—466 9 Claims



A novel jointure provides a panel seal that is particularly adapted for environmentally controlled enclosures and that is easily mounted and demounted. The novel seal is described as a continuous U-shaped batten with compressible sealant strips disposed on each side between the panel edges. A spline forces the sides of the batten to flex and compresses the sealant against the panel edge to form a vapor-tight barrier.

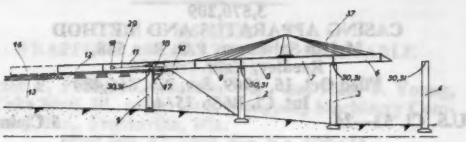
3,570,206
MONOLITHIC CONCRETE SLAB CONSTRUCTION
John A. Armistead, 306 E. 1st Ave., Easley, S.C. 29640
Filed Nov. 21, 1968, Ser. No. 777,686
Int. Cl. E04b 5/48, 1/38
U.S. Cl. 52—503 5 Claims



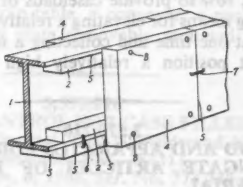
A slab construction for use in multistory buildings which includes a pair of spaced slabs being integrally joined by a plurality of vertically spaced cylindrical members. An omni-directional void is provided between the slab members for accommodating electrical wiring, air conditioning, passageways, etc. The entire slab construction is poured monolithically in concrete, so as to increase the shear strength of the cylindrical connectors.

3,570,207
METHOD OF ADVANCING BRIDGING STRUCTURES MADE FROM PRESTRESSED CONCRETE
Pierre Launay, 108 Boulevard de la Reine, Versailles, France
Filed July 10, 1969, Ser. No. 840,672
Int. Cl. E04b 1/06, 1/20; E04c 3/20
U.S. Cl. 52—745 4 Claims

In the construction of a bridging assembly which will rest on abutment piers and intermediate piers, bridging section are coupled together sequentially and the coupled sections are advanced as a new section is added, joints between the sections being temporarily prestressed at assembly and this prestressing being removed after the assembly of sections is in final position and final prestressing has been installed.



3,570,208
METHOD OF FORMING FIREPROOF LAYERS OUTSIDE STEEL SKELETONS AND BEAMS
Sei Nikai and Kiichi Ishii, Tokyo, and Shinsaku Miyake, Soka, Japan, assignors to Nippon Valqua Industries Limited and Kajima Corporation, both of Tokyo, Japan
Continuation-in-part of application Ser. No. 624,844, Mar. 21, 1967. This application Aug. 4, 1969, Ser. No. 847,345
Claims priority, application Japan, Mar. 23, 1966, 41/18,747; Sept. 6, 1966, 41/83,528
Int. Cl. E04b 1/94
U.S. Cl. 52—746 5 Claims

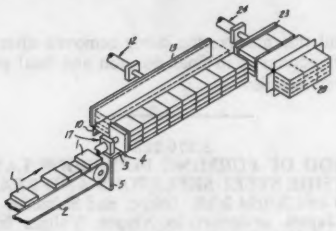


Structures or structural shape frame members, such as beams, columns, and pillars having spaced flanges joined by connecting webs for construction use, are enclosed by molded plates made of a fire-proof material, such as asbestos, cement, vermiculite, perlite, gypsum, rock wool or the like, formed into the required shape. The molded plates are secured to the structural members by applying a fire-proof adhesive agent to the joint portions of the structural members and molded plates and also between the molded plates themselves so that the joint portions can be combined together in a body while using clamps or nails for temporary support thereby forming fire-proof layers about the structural members. For example, a fire-proof material such as asbestos or the like is rendered sufficiently fiber-open and a suitable amount of cement, as a binding agent, is incorporated in the asbestos fibers thus opened and the mixture is fed into a mold under pressure for consolidation into the required size and shape of the molded plates used (blocks and plates) as fire-proof covering members. An adhesive agent made of a mixture of sodium silicate 65% by weight, and asbestos fibers chamotte and fire-proof cement 35% by weight is applied to the joint portions of the structural members and molded members and also between adjacent molded members so that the joint portions can be combined and fixed together while using clamps and nails to form temporary support as the adhesive sets to form fire-proof layers of the required thickness.

Thus it is possible to cover the outside of a structural member including its corners to an exact size by merely securing the fire-proof molded members to the outside of the structural member by means of the adhesive agent,

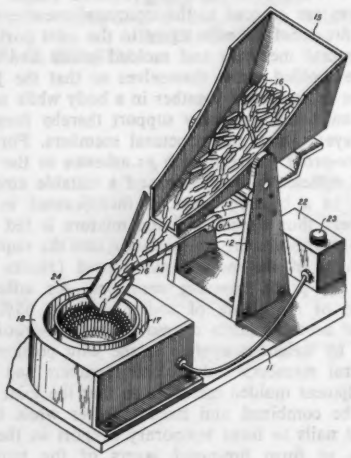
thereby obtaining durable and strong beams and pillars completely covered by said molded fire-proof covering members.

3,570,209
CASING APPARATUS AND METHOD
Melvin Salwasser, P.O. Box 548, Reedley, Calif. 93654
Filed Oct. 15, 1969, Ser. No. 866,480
Int. Cl. B65b *35/40*
U.S. Cl. 53—26 **5 Claims**



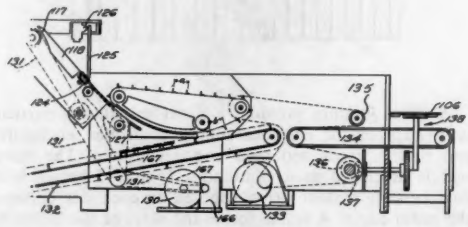
A case load of stacked articles is provided by elevating a plurality of articles in a horizontally extending row and repeating the elevating step until a row of stacks is formed. The row of stacks is then shifted laterally to an offset position as a unit and then moved in a direction longitudinally of the offset row to provide caseloads of stacked articles. By providing means for elevating a relatively large number of articles at one time and collecting a number of stacks in an offset position a relatively high casing speed is achieved.

3,570,210
METHOD AND APPARATUS FOR LOADING ELONGATE ARTICLES OF MAGNETIC MATERIAL
Samuel Pinnolis, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Apr. 9, 1969, Ser. No. 814,748
Int. Cl. B65b *1/08, 19/39*
U.S. Cl. 53—35 **9 Claims**



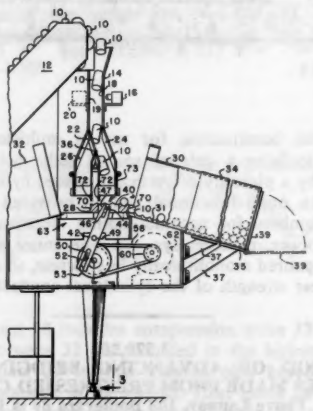
Elongate articles of a magnetic material, such as dry reed switches, are loaded into a non-magnetic container by placing the container in the center of a funnel-shaped magnetic field such as may be produced by a coil of wire forming an electromagnet. As the electromagnet is excited by an A.C. current, the articles are dropped into the center of the container and the alternating magnetic field (a) aligns the articles vertically within the container, (b) drives the articles toward the walls of the container, and (c) vibrates the articles so that they may be tightly packed.

3,570,211
AUTOMATIC TRAYING APPARATUS
George F. Gordon and Charles C. Austin, both of Austin Gordon Design, Inc., Pine St. Extension, Nashua, N.H. 03060
Continuation-in-part of application Ser. No. 595,822, Nov. 21, 1966. This application Nov. 21, 1967, Ser. No. 684,810
Int. Cl. B65b *57/00*
U.S. Cl. 53—55 **11 Claims**



An automatic traying apparatus for filling trays with containers performs the functions of (1) unscrambling a quantity of containers, (2) receiving and individually separating a compressed stack of trays to deposit trays at intervals onto a conveyor, (3) loading the containers into the trays and (4) stacking the filled trays.

3,570,212
COIN BAGGING MACHINE
John H. Murray, Spartanburg, and Richard Dalton Wylie, Gaffney, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed June 3, 1968, Ser. No. 733,963
Int. Cl. B65b *57/20*
U.S. Cl. 53—78 **3 Claims**

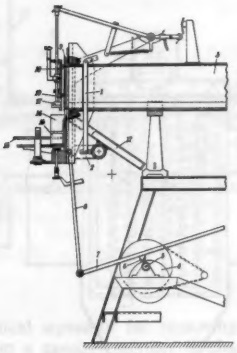


This disclosure is directed to apparatus to automatically count and bag a predetermined number of rolls of coins. The apparatus includes an automatically controlled diverter which after the detection of a predetermined number

of coins is rotated to divert rolls of coins to a new position so that the bagging operation is substantially continuous.

3,570,213
MACHINE FOR CUTTING AND CANNING FOOD PRODUCTS IN PLASTIC STATE, PARTICULARLY MEAT

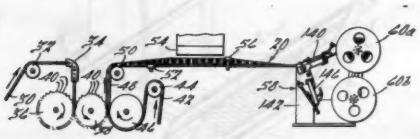
Pietro Sada, Aprilia, Latina, Italy
Filed July 15, 1968, Ser. No. 744,789
Claims priority, application Italy, Feb. 24, 1968, 35,073/68
Int. Cl. B65b *63/00, 1/24, 25/06*
U.S. Cl. 53—123 1 Claim



A machine for cutting and canning food products in plastic state, particularly meat, characterized by the combination of a product reservoir which is periodically loaded with the product to be canned, and from which a prefixed amount is caused to issue sequentially from an outlet slot at a filling station. The pre-fixed amount of product is cut and conveyed into a box, from where it is further compacted and arranged within a can. The machine sequentially sends cans to the filling station from a feeding reservoir, in order to impart thereto a distinguishing mark and for ejecting them when the operations are ended.

3,570,214
PACKET FORMING APPARATUS

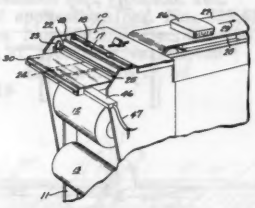
Sanford K. Carlisle, Jr., Andover, Mass., and George F. Gordon, Nashua, N.H., assignors to Diamond Crystal Salt Company
Filed Mar. 27, 1968, Ser. No. 716,605
Int. Cl. B65b *9/04, 47/04*
U.S. Cl. 53—184 3 Claims



An apparatus for making a continuous ribbon of interconnected dispensing packets which includes means for forming a plurality of cavities between two webs and filling the cavities with a material to be dispensed, whereafter the cavities are sealed and the resultant ribbon is wound by a winding device on successive reels, each containing a preselected length of the ribbon, without any interruption in the continuity of manufacture of the ribbon of interconnected packets.

3,570,215
WRAPPING APPARATUS WITH MOVABLE HOT PLATE

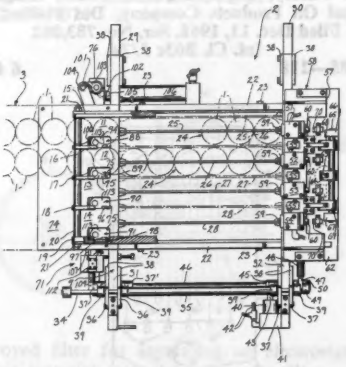
Victor E. Palmer, Greendale, Wis., and John T. Young, Lake Bluff, Ill., assignors to Wrapping Machinery Company, Inc., Franksville, Wis.
Filed Jan. 17, 1968, Ser. No. 698,616
Int. Cl. B65b *67/08*
U.S. Cl. 53—201 4 Claims



This disclosure relates to package wrapping apparatus comprising a prewrap table, a conveyor, a package rest, and a portable hot plate removably mounted over said package rest.

3,570,216
FEED CONTROL FOR CASE FILLER

Herman C. Frentzel, 4363 N. Wildwood Ave., Shorewood, Wis. 53211
Filed Nov. 6, 1968, Ser. No. 773,740
Int. Cl. B65b *5/06*
U.S. Cl. 53—248 10 Claims

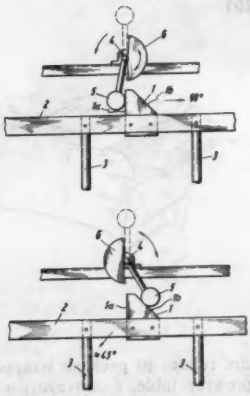


A machine for loading bottles into cases feeds four streams of bottles into stalls in a loader stage. When the stalls are filled, the feed of bottles is stopped, and supporting rails are slid from beneath the bottles allowing them to drop through chutes into the case below. Vertical gate bars at the threshold of the loader stage are mounted on bellcranks which simultaneously swing the gate bars across the streams of bottles to block the paths and stop the feed, while loading stage empties into the case.

3,570,217
CLEANING DEVICE FOR ELECTROSTATIC DUST COLLECTOR DISCHARGE ELECTRODES

Walter Steuernagel, Frankfurt am Main, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed July 8, 1969, Ser. No. 839,907
Claims priority, application Austria, July 15, 1968, A 6,820/68
Int. Cl. B03c 3/76
U.S. Cl. 55—112 **4 Claims**

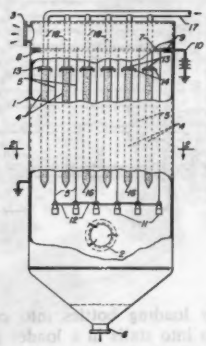


Dust is shaken from the discharge electrodes in an electrostatic dust separator by means of hitting an anvil secured to the framework, from which the electrodes are hung, with a freely falling hammer which alternately strikes a vertical side and an inclined side of the angles to produce vibrations in different directions and intensity.

3,570,218
ELECTRODE CONFIGURATION IN AN ELECTRICAL PRECIPITATOR

James A. Finney, Jr., Greenwich, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 11, 1968, Ser. No. 783,002
Int. Cl. B03c 3/74
U.S. Cl. 55—118 **6 Claims**

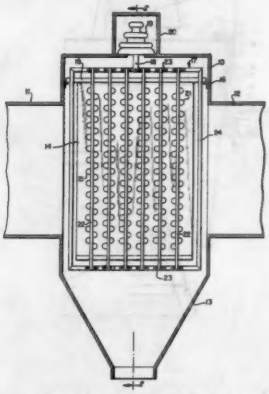


An improved liquid film electrical precipitator in which each charging electrode wire is located between and maintains electric fields with respect to several separate collector electrodes. A liquid supply means carries liquid to the exterior surfaces of the collector electrodes. Preferably, the lower portions of the collector electrodes terminate in downward vertical points. Downward extensions passing through these points pass between the charging electrodes and the stabilizing and linking apparatus associated with the charging electrodes.

3,570,219
DISCHARGE ELECTRODE ASSEMBLY

Frederick W. Schmitz, Plainfield, N.J., assignor to Research-Cottrell, Inc., Bridgewater Township, Somerset County, N.J.

Filed Jan. 8, 1968, Ser. No. 696,247
Int. Cl. B03c 3/04
U.S. Cl. 55—148 **4 Claims**

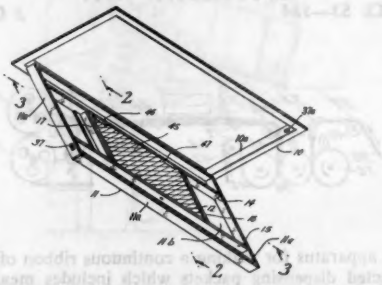


Discharge electrode assemblies electrical precipitators having extended surface collecting electrodes comprise elongate metallic ribbons disposed with the edges of the ribbons having substantially parallel paths in planes parallel to and spaced from the associated collecting electrode faces and support members maintaining the ribbons rigidly in such position. In preferred arrangements the metallic ribbons are bent into at least partially curvilinear shape.

3,570,220
COMBINED ACCESS DOOR AND FILTER HOLDER

John V. Felter, P.O. Box 7464, Houston, Tex. 77008

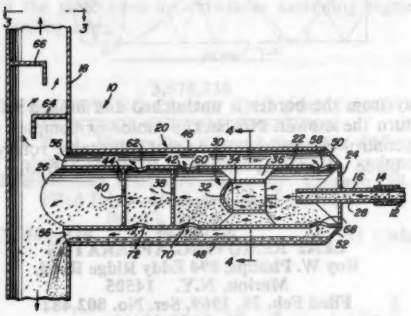
Filed Apr. 2, 1969, Ser. No. 812,655
Int. Cl. B01d 46/00
U.S. Cl. 55—385 **5 Claims**



Combined access door and filter holder wherein the filter holder opens inwardly of the access door, adapted

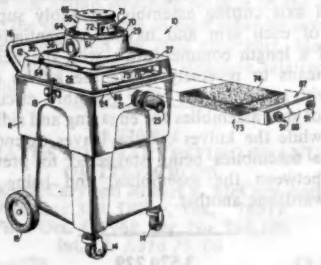
for use of inexpensive filter media supplied in flat sheets or rolls, which is cut to size for placement in the filter holder which holds the filter media in adequately supported condition.

3,570,221
TWO PHASE FLUID-SOLID SEPARATOR
Wilbert J. Oliver, P.O. Box 163, Egan, La. 70531
Filed Feb. 20, 1969, Ser. No. 801,099
Int. Cl. B01d *51/00*
U.S. Cl. 55—418 **11 Claims**



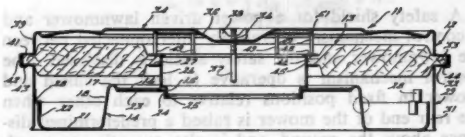
A mechanical separator for removing liquid and solid particles from a gaseous mixture discharged under pressure from a well during a cleaning operation. Axial flow of the mixture through a horizontal chamber is progressively baffled to separate gas from liquid and solid particles. The gas is collected within an upper channel and conducted to a vertical outlet pipe while the liquid and solids are collected in a lower channel for gravity discharge from the outlet pipe.

3,570,222
WET OR DRY SHOP VACUUM CLEANER
Edmund C. Dudek, St. Charles, Ill., and Richard M. Fegan, Pickens, S.C., assignors to The Singer Company, New York, N.Y.
Filed May 13, 1969, Ser. No. 824,178
Int. Cl. B01d *46/00*
U.S. Cl. 55—472 **9 Claims**



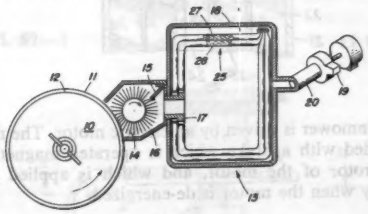
The present vacuum cleaner, which is of the industrial type and is adapted either for wet or dry pick-up, comprises a container adapted to hold the liquid or dry material picked up by the cleaner and a cover which fits over the container and provides a housing for the motor-blower assembly and the filter assembly. A dump valve is provided for removal of the liquid from the container. The filter assembly includes a common furnace type filter that is suspended from an adjustable filter rail inside the cover and which easily can be removed through a frontal opening provided in the cover. A novel removable door closure arrangement and construction disposed over the frontal opening provides an airtight seal with the cover and facilitates removal of the filter when it becomes clogged or when it is necessary to remove the filter during operation of the cleaner for wet pick-up. The motor-blower unit resiliently is mounted on a support bracket constructed and arranged to facilitate assembly of the unit in the cleaner.

3,570,223
FILTER
Louis J. Svoren, Racine, Wis., assignor to Tenneco Inc., Houston, Tex.
Continuation of applications Ser. No. 525,636, Feb. 7, 1966, and Ser. No. 694,350, Dec. 28, 1967. This application Jan. 31, 1969, Ser. No. 809,448
Int. Cl. B01d *27/08*
U.S. Cl. 55—510 **4 Claims**



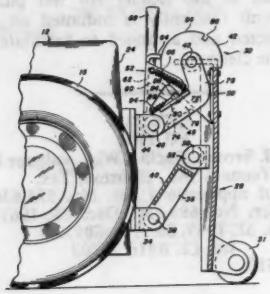
A throw-away type air filter assembly for an internal combustion engine induction system. The air cleaner assembly includes a long life filter element and a filter housing in which the element is permanently retained so that the housing and element are replaced as a unit.

3,570,224
FILTER FOR ELECTROSTATOGRAPHIC DEVELOPER
Carl F. Clemens, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed Nov. 17, 1969, Ser. No. 877,240
Int. Cl. B01d *46/02*
U.S. Cl. 55—374 **3 Claims**



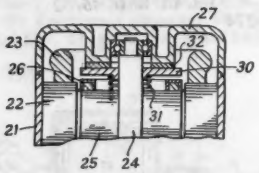
Improved filter for separating an electrostatographic developer material (toner) wherein the filter material is coated with a plasticizer for the toner. The filter is preferably formed from fiber glass and is comprised, in the direction of flow, of a loosely assembled web or mat of increasing density and a loosely assembled web or mat of substantially uniform density. The filter is generally employed in the cleaning station of a xerographic machine and is employed to remove toner particles suspended in an air stream. The filter bag has been found to have a useful life of 18,000 copies or more, as compared to conventional filter bags which have a useful life of about 4,000 copies.

3,570,225
SAFETY SHIELD
Leonard A. Miskiewicz, 219 Sprucewood St., Pittsburgh, Pa. 15210
Filed June 2, 1969, Ser. No. 829,575
Int. Cl. A01d *75/20*
U.S. Cl. 56—25.4 **4 Claims**



A safety shield for a power driven lawnmower and a control mechanism operatively interconnected between the lawnmower and the safety shield is disclosed. The control mechanism is operative to lock the shield and mower in fixed positions relative to each other when the rear end of the mower is raised a predetermined distance above the ground, and is also operative to terminate electrical energy supplied to the power means driving the mower when the mower is so raised.

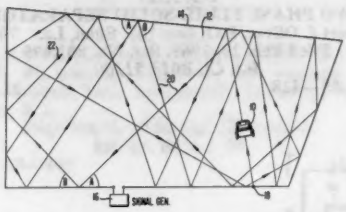
3,570,226
ELECTRICALLY DRIVEN LAWNMOWER
Hans Haverkamp and Gernot Neumann, Lipperreihe, near Bielefeld, Germany, assignors to Hanning Elektro-Werke Robert Hanning, Bielefeld, Germany
Filed Aug. 5, 1968, Ser. No. 750,447
Claims priority, application Germany, Aug. 5, 1967, P 15 82 243.2
Int. Cl. A01d *35/26*
U.S. Cl. 56—25.4 **2 Claims**



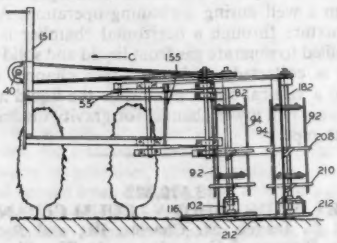
A lawnmower is driven by an electric motor. The motor is provided with a brake which is operated magnetically by the rotor of the motor, and which is applied automatically when the motor is de-energized.

3,570,227
SELF-PROPELLED RANDOM MOTION LAWNMOWER
S. Lawrence Bellinger, Florissant, Mo., assignor to Mowbot, Inc., Tonawanda, N.Y.
Continuation-in-part of application Ser. No. 405,064, Oct. 20, 1964. This application Jan. 16, 1969, Ser. No. 791,566
Int. Cl. B62d *11/08*
U.S. Cl. 56—25.4 **14 Claims**

Disclosed is a self-propelled lawnmower for cutting grass in a completely random and unattended manner. The unit is preferably propelled by a battery and comprises a frame supported on a pair of front caster wheels and a pair of rear drive wheels. The drive wheels are coupled to a continuously rotating drive shaft by individual clutch-brake mechanisms. When a boundary wire is sensed by coils on the frame, the drive wheel furthest away from the border is unclutched and braked to pivot or turn the mower. No backup motor or complex steering control is required. A pair of adjustable rotary cutter blade assemblies are carried on the frame.



3,570,228
LEAF REMOVING APPARATUS
Roy W. Phillips, 894 Eddy Ridge Road, Marion, N.Y. 14505
Filed Feb. 26, 1969, Ser. No. 802,482
Int. Cl. A01d *55/18*
U.S. Cl. 56—234 **1 Claim**

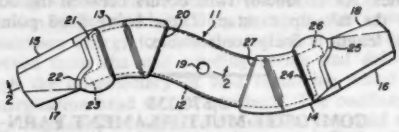


Deleafer for Brussels sprouts plants and the like arranged in a row comprising a transverse frame disposed at a height to clear a row of plants, a pair of arms one longer than the other extending rearwardly from the frame and adapted to swing on substantially vertical axes, a vertical axis cutting assembly rotatably supported on the end of each arm and having tangentially disposed knives of a length commensurate with the height of the plants, means to reversely rotate the knives of one assembly with respect to the other assembly, circular guards for each of said assemblies for engaging and riding around a plant, while the knives cut the leaves extending therefrom, the assemblies being staggered to prevent interference between the assemblies, and being yieldingly urged toward one another.

3,570,229
MOWER BLADE
Abraham L. Freedlander, Dayton, Ohio, and Robert E. Matthews and Wayne C. Garrett, Waynesville, N.C., assignors to Dayco Corporation, Dayton, Ohio
Filed Oct. 28, 1968, Ser. No. 771,207
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. A01d *55/18*
U.S. Cl. 56—295 **5 Claims**

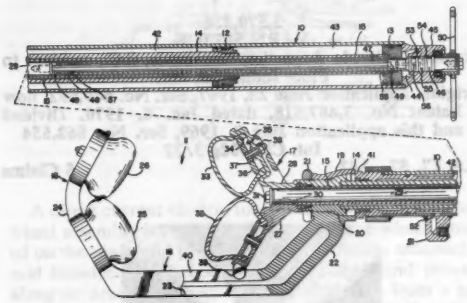
A flexible elastomeric lawn mower blade having outwardly extending arms and integral cutting edges, with a

rigid central mounting plate embedded in the arms. The arms and the ends of the plate are offset from and curved



with respect to the center portion of the plate, and the ends of the plate have an outwardly extending segment at the trailing edge.

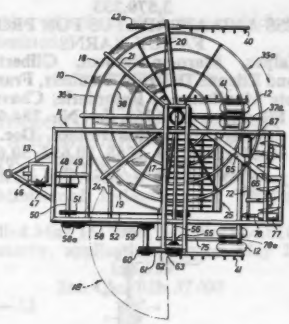
3,570,230
TREE GRIPPING CLAMP AND BOOM AND CONTROL SYSTEM THEREFOR
Stuart D. Pool, Naperville, Edward Svereika, Chicago, and Calvin P. Rickerd, La Grange Park, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed July 9, 1968, Ser. No. 743,360
Int. Cl. A01g *19/08*
U.S. Cl. 56—328 **11 Claims**



A boom assembly for a tree shaker apparatus wherein the assembly includes a hydraulic cylinder within which a pair of pistons are mounted in axially spaced relation to define a plurality of fluid chambers. A tree gripping clamp includes a pair of jaws connected respectively to the pair of pistons. Hydraulic control means are operative to move the clamp structure relative to the cylinder and to move the jaws relative to each other by controlling the fluid pressure within the fluid chambers. Means are provided for rotating the clamp structure relative to the boom assembly.

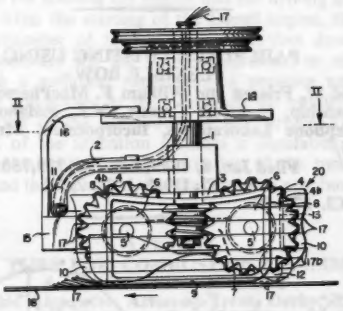
3,570,231
APPARATUS FOR HARVESTING PEANUTS OR LIKE CROPS
Dwana K. McCary and Robert E. McCary, both of P.O. Box 350, Dilley, Tex. 78017
Filed Oct. 4, 1968, Ser. No. 765,108
Int. Cl. A01d *79/00*
U.S. Cl. 56—370 **13 Claims**

An apparatus for inverting a windrow comprises a frame adapted to be moved forwardly over the windrow, fingers mounted on the frame for rotation about a laterally extending axis for penetrating the top of the windrow, and a plate mounted on the frame rearwardly of the fingers and in the path of the windrow to confine it for turning on itself about a generally horizontal axis. A platform on the frame is open at both sides of its rearward end and has one side positioned to receive the inverted windrow. A wheel is mounted on the platform for rotation about a generally horizontal axis midway between the sides of the platfom, and parts on the wheel penetrate the top of the inverted windrow received on the one side of the platform to carry it to and off the other open side of the platform and thus lay the inverted windrow on the ground surface to one side of the ground surface from which it was picked up. A forward wall on the platform extends across it from one side to the other and is curved concavely with respect to the rearward end of the platform and concentrically outwardly of the wind-



row penetrating parts on the wheel. The means for picking up and inverting the windrow is fixed in alignment with the frame, and the platform is laterally shiftable of the frame so as to dispose a selected side in position to receive the inverted row and to cause its other side to overhang the frame. Each of the pick-up fingers and wheel is operated independently of the forward movement of the frame, and there is a means on the frame for building up a mound of soil along the ground surface from which the windrow has been picked up.

3,570,232
METHOD AND APPARATUS FOR FORMING RINGS OF THREADS
Ernst Erb, Basel, Switzerland, assignor to Etablissements Superba SA, Mulhouse, France
Filed Feb. 25, 1969, Ser. No. 802,114
Claims priority, application Switzerland, Feb. 27, 1968, 2,806/68
Int. Cl. B65h *54/82*
U.S. Cl. 57—1 **11 Claims**



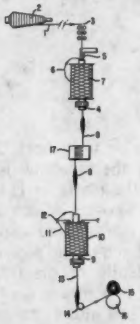
Single threads are drawn off a supply, conveyed through thread-break stop motions and combined in a rope which is passed through the axis of a revolving guide arm to

feed the rope into gaps between consecutive teeth on the descending peripheries of toothed wheels. The rear parts of the thread rings formed in this manner are continuously carried downwards by the wheels and pushed into contact with a forward travelling friction belt which conveys them underneath two members slidably pressing the rings in close succession onto the belt which carries them forward in the form of lapped sequences of layers of rings of substantially uniform thickness suitable for submission to conventional treatments.

3,570,233
PROCESS AND APPARATUS FOR PRODUCING FANCY YARNS

Raoul Nalpas, Marq-en-Baroeul, Gilbert Descamps, Croix, and Etienne Delcroix, Roubaix, France, assignors to Societe Moulinage et Retorderie, Chavanoz, France

Filed Dec. 18, 1968, Ser. No. 784,674
Claims priority, application France, Dec. 28, 1967, 49,473; Nov. 22, 1968, 50,653, 50,654
Int. Cl. B65h *81/08*; D02g *3/34*
U.S. Cl. 57—16 **21 Claims**

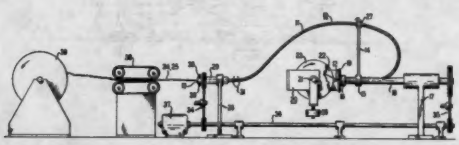


An improved process for producing fancy yarns, i.e., "nubbled" yarns wherein an effect yarn is wound on at least one core yarn upon passage through a first covering or lapping element with a binding yarn being subsequently wound on the intermediary assembly formed from the effect yarn and core yarn in a second lapping or covering element, the improvement relating to the fact that the speed of the intermediary assembly is varied while the final winding to produce the completed fancy yarn is conducted at substantially constant speed.

3,570,234
PAIR FLYER TWISTING USING FLEXIBLE BOW

Harold W. Friesen and William F. MacPherson, Warren Township, Somerset County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 8, 1969, Ser. No. 789,750
Int. Cl. D01h *1/04, 7/24*
U.S. Cl. 57—59 **6 Claims**



This disclosure describes a flyer-type conductor pair twister in which the bow consists of a flexible tube with two smaller flexible tubes within, through which two conductors are respectively threaded. The entrance end of the tube is fixed so that it does not rotate as the bow rotates. All conductor twist occurs between the bow exit and the take-up capstan. These being fixed points, the twist length is finely controllable.

3,570,235
COMPOSITE MULTIFILAMENT YARN

Mototada Fukuhara, Akira Ueno, Isao Nihei, and Chikara Sano, Mishima-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Filed Oct. 15, 1968, Ser. No. 767,813
Claims priority, application Japan, Oct. 18, 1967, 42/66,546
Int. Cl. D02g *1/18, 3/24*
U.S. Cl. 57—140 **3 Claims**

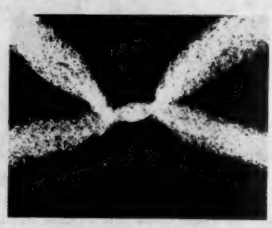
A multifilament yarn comprising a plurality of filaments composed of two kinds of thermoplastic high polymers having different viscosities and arranged in an eccentric disposition in the cross section of each filament. Material high-polymers should preferably be chosen from polyester groups and the difference in viscosities thereof should be larger than 0.05.

A fabric containing the yarns can be provided with enhanced bulkiness together with unique handling quality.

3,570,236
YARN SPLICE

Fernando Alfredo Arguelles, Greenville, S.C., assignor to Fiber Industries, Inc.

Original application June 28, 1967, Ser. No. 649,692, now Patent No. 3,487,618, dated Jan. 6, 1970. Divided and this application July 9, 1969, Ser. No. 862,554
Int. Cl. D02g *3/22*
U.S. Cl. 57—142 **5 Claims**

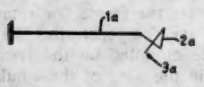


Two yarns are spliced together by subjecting the yarns, located in a confined zone, to the flow of two directly opposed fluid streams.

3,570,237
MECHANICAL ENERGIZATION HEAD OF A MECHANICAL REGULATING OSCILLATOR FOR WATCH MOVEMENT

Hermann Steiger, 18 Rue des Paquis, 1201 Geneva, Switzerland

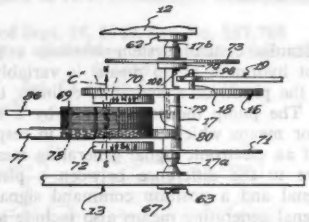
Filed Oct. 28, 1968, Ser. No. 771,043
Claims priority, application Switzerland, Nov. 8, 1967, 15,607/67
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 **1 Claim**



The invention concerns a watch movement regulating device which comprises a mechanical regulating oscillator and an energizing head rigidly connected to said oscillator.

The free end of the wire shaped energizing head has a cross section very much smaller than that of the oscillator and enters in successive contacts with the toothing of a regulating wheel of the watch movement which is driven in rotation by the watch winding spring. In this assembly the necessary energy to keep the oscillator in oscillation is derived from the said winding spring and delivered through the intermediary of said regulating wheel and the energization head to said oscillator. The oscillator in its turn regulates, through the intermediary of said energization head, the speed of rotation of the regulating wheel.

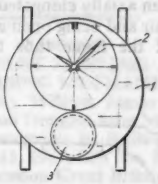
3,570,238
DIRECT CURRENT ELECTRIC TIMEPIECE
James W. Richmond, Bensenville, and Richard N. Kassner, Lombard, Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed Mar. 4, 1968, Ser. No. 710,273
Int. Cl. G04c 3/00
U.S. Cl. 58—28 **16 Claims**



A direct current electric timepiece comprising a balance wheel assembly including a shaft, a balance wheel mounted on the shaft, and permanent magnet means mounted on said balance wheel eccentric of said shaft and movable along an arcuate path in opposite directions from a neutral position lying on a plane extending radially of the shaft. Fixed electromagnetic coil means are centered on the neutral plane outwardly of the shaft and means are provided for selectively energizing and de-energizing the coil means to successively repel the permanent magnet means on the balance wheel, thereby providing magnetic impulse forces for oscillating the balance wheel in opposite directions from the neutral position. An eddy current damper is positioned diametrically opposite the coil means adjacent the path traversed by the magnet means on the balance wheel for opposing the movement of the balance wheel as it oscillates to prevent overbanking of the balance wheel when the battery power is in the high voltage range. The balance wheel assembly drivingly engages an escapement lever which rotates a toothed escapement wheel in synchronism with the oscillation of the balance wheel assembly. The escapement wheel is mounted on a shaft, and spring means is disposed at one end of the shaft for biasing the shaft axially against a bearing supporting the opposite end thereof to provide braking action on the shaft to prevent overtravel of the escapement wheel.

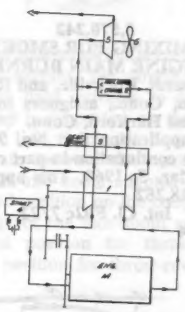
3,570,239
WRISTWATCH WITH MEANS FOR CHECKING RADIOACTIVITY OF THE ENVIRONMENT
Francois Charles, Bassecourt, Switzerland, assignor to Georges Ruedin S.A., Bassecourt, Bern, Switzerland
Filed May 13, 1969, Ser. No. 824,155
Int. Cl. G04b 37/12
U.S. Cl. 58—152 **4 Claims**

A wristwatch provided with means for checking the radioactivity of the environment in which the watch is of thermo-luminescent material, the thermo-luminescence located, the checking means comprising an element made



of which varies with the radiations to which the element has been submitted.

3,570,240
SUPERCHARGING APPARATUS FOR DIESEL AND MULTIFUEL ENGINES
Jean Melchior, Fontenay-aux-Roses, France, assignor to Etat Francais, represented by the Minister of Armed Forces (Ministerial Delegation of Weapons), Paris, France
Filed May 15, 1969, Ser. No. 824,810
Claims priority, application France, May 29, 1968, 153,339
Int. Cl. F02b 37/00
U.S. Cl. 60—13 **11 Claims**

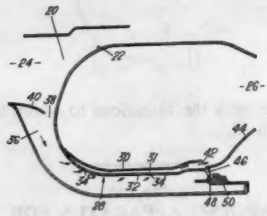


Supercharging device for a Diesel engine comprising a combustion chamber and starting means for the turbo-compressor permitting the same to operate as a gas turbine. Said turbine, started prior to the engine, establishes in the intake manifold such conditions, relative to pressure and temperature, that initial ignition by combustion becomes possible with a low volume ratio. The turbine can also serve for starting the engine and for driving auxiliary services. After the starting of the Diesel engine, the combustion chamber of the device can be shut down. The energy necessary for the turbo-compressor, to enable it to furnish a sufficient supercharging pressure under all operating conditions, is then obtained by modifying the cross-section of the distributor of the turbine. One embodiment of the invention includes a regulating system which maintains the speed of rotation of the turbo-compressor and the supercharging pressure at a constant value.

3,570,241
FLAME TUBE FOR COMBUSTION CHAMBER OF A GAS TURBINE ENGINE
Eric Archie Alexander, Aston-on-Trent, Derby, England, assignor to Rolls-Royce Limited, Derby, England
Filed July 29, 1969, Ser. No. 845,792
Claims priority, application Great Britain, Aug. 2, 1968, 37,091/68
Int. Cl. F02c 7/18
U.S. Cl. 60—39.65 **5 Claims**

A flame tube for a gas turbine engine combustion chamber, a wall of the flame tube being double-skinned for at

least the greater part of its axial length over at least a portion of its circumference, the double-skinned portion of the wall comprising an internal skin spaced from an external skin to define an axially elongated passage, the passage receiving cooling air and being open at its downstream end to the interior of the flame tube to direct cooling air



emerging from the passage across an internal surface of the flame tube wall to effect film cooling thereof, the external skin having apertures adapted to direct jets of cooling air forcefully onto the internal skin, so that no boundary layer is formed in the cooling air flowing through said passage.

3,570,242

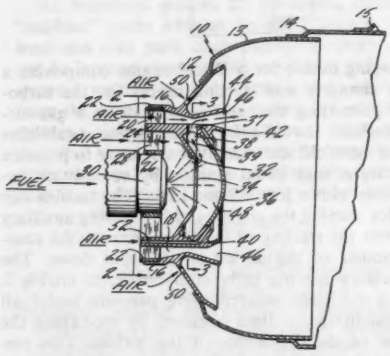
FUEL PREMIXING FOR SMOKELESS JET ENGINE MAIN BURNER

Salvatore A. Leonardi, Rockville, and Robert A. Rubino, West Willington, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Continuation of application Ser. No. 738,216, June 19, 1968, which is a continuation-in-part of application Ser. No. 710,538, Mar. 5, 1968. This application Apr. 20, 1970, Ser. No. 28,252

Int. Cl. F02c *7/22*

U.S. Cl. 60—39.74 **5 Claims**



Air is swirled into a frusto-conical converging annular baffle within a chamber, which causes increased rotary velocity of the swirling air; fuel is sprayed into the air within the chamber. When the swirled fuel-air mixture passes through the axial outlet of the converging baffle, it is centrifugally forced radially outward through tangential or radial ports into the throat of an annular venturi duct through which further air is introduced. This mixture then enters the burner can of a gas turbine for combustion. Additional air passages may be used so as to prevent carbon formation on various surfaces.

3,570,243

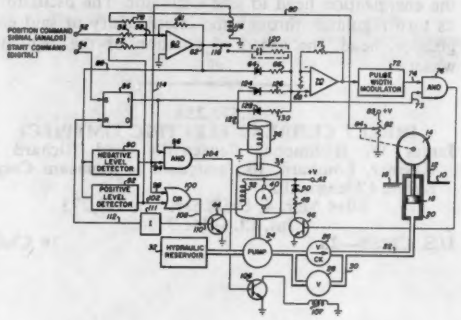
HYDRAULIC ACTUATOR CONTROL SYSTEM

Donald T. Comer and Ronald D. Irvin, Los Gatos, Calif., and Robert E. Jones, Greene, N.Y., assignors to Mobility Systems, Inc., Santa Clara, Calif.

Filed Dec. 9, 1968, Ser. No. 782,026

Int. Cl. F15b *15/18*

U.S. Cl. 60—52 **17 Claims**



A hydraulic control system wherein a positive displacement hydraulic pump means is variably controlled to drive the piston of a hydraulic cylinder to a selected position. The pump means is driven by a shunt-wound DC motor means which is energized in response to the output of an electronic signal generating means which is responsive to the difference between a piston position sense signal and a position command signal. The electronic signal generating means also include an automatic disabling circuit which prevents overshoot and oscillation in the hydraulic cylinder.

3,570,244

POWER PISTON DRIVE FOR ARMATURES

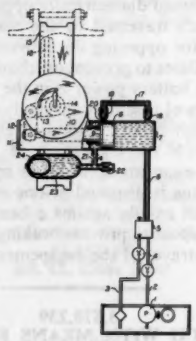
Karl Strobel, Heidenheim, Hermann Krais, Nattheim, and Hans Freisler, Heidenheim, Germany, assignors to Johannes Erhard, H. Waldenmaier Erben, Suddeutsche Armaturenfabrik, Heidenheim, Germany

Filed July 24, 1969, Ser. No. 844,418

Claims priority, application Germany, Oct. 1, 1968, P 18 00 424.5

Int. Cl. F15b *1/02*

U.S. Cl. 60—51 **4 Claims**



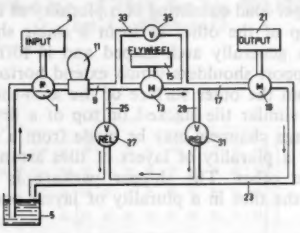
A servo-piston drive for a control member for flowing gaseous or liquid fluids, which control member is adjustable between a closed position and an open position by a differential piston movable in a working cylinder, which

drive comprises a working cylinder defining a chamber on opposite sides of at least one differential piston and includes on one side a pipeline serving as inlet and outlet and on the other side is connected with a pressure reservoir. A by-pass line connects both sides of the differential piston. Non-return valves in the by-pass line close off the chambers in front of and behind the differential piston. The differential piston is movable in the closing direction of the control member upon exerting of pressure in the pipeline and charging the pressure reservoir, thereby positively opening one of the non-return valves and balancing out the pressures in the chambers in front of and behind the differential piston and charging the pressure reservoir to the control pressure, and upon reversal of pressure in the pipeline, the bypass line is shut off by the other of the non-return valves, so that the differential piston is forced back by the pressure of the pressure reservoir and the control member is opened.

3,570,245
HYDRAULIC DRIVING SYSTEM WITH INERTIAL MOTOR

Franciscus Henricus van der Linde, Wassenaar, Netherlands, assignor to N.V. Industrieele Handelscombinatie Holland

Filed Sept. 15, 1969, Ser. No. 857,709
Claims priority, application Netherlands, Sept. 20, 1968, 68131514
Int. Cl. F15b *1/02, 11/16*
U.S. Cl. 60—51 **3 Claims**

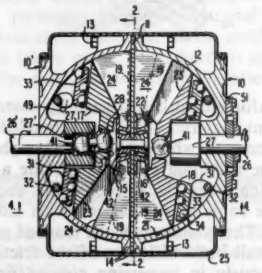


A hydraulic driving system has a pump and an output motor driven by the pump. A motor that drives a flywheel is disposed in fluid series between the pump and the output motor. Pressure relief bypasses are arranged between the pump and the flywheel motor, and also between the flywheel motor and the output motor.

3,570,246
HYDRAULIC TORQUE CONVERTER

Joe Floyd Briggs, 2801 Quebec St. NW., Apt. 445, Washington, D.C. 20008

Filed Mar. 11, 1969, Ser. No. 806,055
Int. Cl. F16d *31/06*
U.S. Cl. 60—53 **13 Claims**

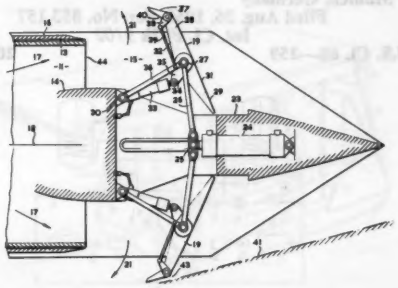


A torque converter comprising a pair of identical hydraulic pumps rotatable about a common axis and operatively opposed to one another so that one pump drives the other. Each pump is so designed that the output of either may be varied independently of its speed making possible variable speed ratios as power is transmitted through the converter.

3,570,247
JET NOZZLE THRUST SPOILING AND THRUST REVERSING MECHANISM

Ralph Murch Denning, William James Lewis, Reginald Harold Wiltshire, and Douglas John Nightingale, Filton, Bristol, England, assignors to Rolls-Royce Limited

Filed Sept. 11, 1969, Ser. No. 857,029
Claims priority, application Great Britain, Sept. 14, 1968, 43,824/68
Int. Cl. F02k *1/20*
U.S. Cl. 60—230 **3 Claims**

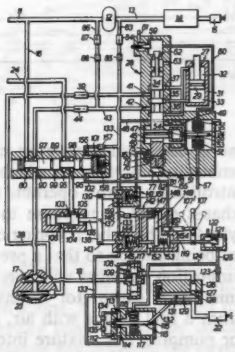


The disclosure of this invention pertains to a jet nozzle for jet propulsion engines, the nozzle having a centre body provided with flaps movable to divert the flow of the gases. Each flap is supported on the centre body by a first and a second link, the first link engaging the flap at a point intermediate between the upstream and downstream ends thereof and being adapted to move the flap away from a stowed position on the body, the second link being adapted to pivot the flap about said point into an obliquely rearward position for thrust-spoiling or an obliquely forward position for thrust-reversing.

3,570,248
LIQUID FUEL SUPPLY SYSTEM FOR A GAS TURBINE ENGINE

Stanley R. Tyler, Cheltenham, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England

Filed Apr. 25, 1969, Ser. No. 819,189
Claims priority, application Great Britain, May 6, 1968, 21,396/68
Int. Cl. F02k *1/16, 1/18, 3/10*
U.S. Cl. 60—237 **5 Claims**



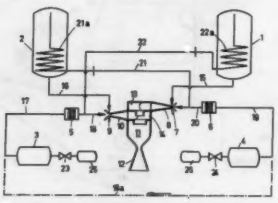
A liquid fuel supply system for an aircraft gas turbine engine has a centrifugal pump arranged to supply fuel to reheat burners at a rate which is regulated by a first flow

control means, and arranged also to supply liquid fuel for operating an auxiliary power service which includes a second flow control means controlling a variable area discharge nozzle of the engine. The centrifugal pump has a turbine drive to which the supply of compressed air is regulated by a valve in response to the total flow demand of the first and second flow control means.

3,570,249
METHOD OF OPERATING A ROCKET COMBUSTION CHAMBER AND COMBUSTION CHAMBER SYSTEM FOR PERFORMING THE METHOD

Werner Baum, Frankenbach, and German Munding, Bad Friedrichshall, Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung, Munich, Germany

Filed Aug. 26, 1969, Ser. No. 853,157
Int. Cl. F02k *9/02*
U.S. Cl. 60—259 20 Claims

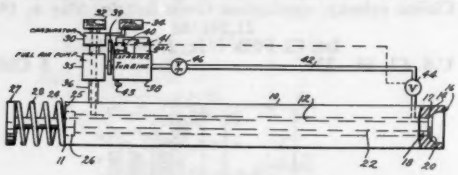


A method of operating a rocket combustion chamber with hypergolic propellants, including at least one liquid fuel, or at least one liquid oxidizer, comprises utilizing jet pumps to supply the propellants to the combustion chamber. The jet pumps are operated by the catalytic decomposition products of monergols, these decomposition products taking part in the combustion chamber reaction. A propellant supply system and a combustion chamber system are provided for performing the method. A solid fuel or a solid oxidizer may be used, in a known manner, in place of the liquid fuel or liquid oxidizer.

3,570,250
JET ENGINE

Donald G. Pensel, Star Rte., Glens Falls, N.Y. 12801

Filed Aug. 12, 1969, Ser. No. 849,327
Int. Cl. F02k *3/00*
U.S. Cl. 60—263 5 Claims

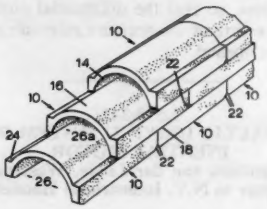


A jet engine is described having an elongated hollow cylindrical combustion chamber in which the combustion pressure is controlled by a valve operable to vary the opening of the exhaust outlet in response to the combustion level in the cylinder. The valve is spring operated with the spring constant being chosen so that a predetermined pressure in the combustion chamber will open the valve a predetermined amount. A carburetor means is provided for mixing fuel from a fuel source with air, and a fuel pump is provided for pumping this mixture into the combustion chamber by means of an intake manifold. The fuel-air pump is driven by a turbine which is operated by a portion of the exhaust gases generated in the combustion chamber. A throttle valve is interposed in the duct connecting the combustion chamber with the turbine so that the quantity of flow of the exhaust gases to the turbine may be controlled thereby controlling the rate at which fuel is pumped into the combustion chamber which in turn will determine the thrust developed by the engine.

3,570,251
DRAINAGE TILE

Dennis G. Roberts, 701 5th Ave. S., Port Alberni, British Columbia, Canada

Filed Jan. 8, 1969, Ser. No. 789,827
Int. Cl. E02b *11/00*
U.S. Cl. 61—10 4 Claims

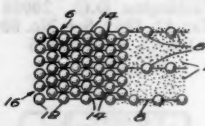


The disclosure of the present invention includes a description of a tile which is suitable for use in the formation of ground water drainage channels and the like and a shipper load consisting of a plurality of tiles stacked one on top of the other to form a stable shipper load. The tile is generally arch-shaped and is formed with a pair of support shoulders which extend horizontally outwardly from the outer surface of the arch-shaped tile to support a similar tile stacked on top of a first such tile. The drainage channels may be made from a single layer of tiles or a plurality of layers of tiles arranged one on top of the other. The shipper package is formed by arranging the tiles in a plurality of layers one on top of the other.

3,570,252
CONSTRUCTIONAL WORKS

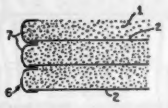
Henri C. Vidal, 17 Rue Armengaud, 92 Saint-Cloud, France

Original application Mar. 26, 1964, Ser. No. 354,947, now Patent No. 3,421,326, dated Jan. 14, 1969. Divided and this application Sept. 24, 1968, Ser. No. 762,033
Int. Cl. E02b *7/08*; E02d *5/00*
U.S. Cl. 61—30 11 Claims



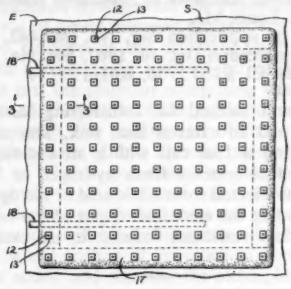
Earth reinforcement constructed by assembling a mass of pulverulent material frictionally bonded by elongated frictional elements which extends through the mass of particles. The frictional elements include a flexible cable or wire having large radial projections such as balls secured on the cable at regular intervals along the length of the cable. The boundary of the mass of particles is confined by a wall built of layers of the frictional elements layed continously in traversing courses on top of each other. At suitable intervals the elongated frictional elements extend outwardly from the wall into the mass of particles so that the particles fill the space between the reinforcing elements to provide a stable structure.

3,570,253
CONSTRUCTIONAL WORKS
Henri C. Vidal, 17 Rue Armengaud, 92 St. Cloud, France
Original application Mar. 26, 1964, Ser. No. 354,947, now Patent No. 3,421,326, dated Jan. 14, 1969. Divided and this application Jan. 13, 1969, Ser. No. 798,245
Int. Cl. E02b *7/06*
U.S. Cl. 61—35 **10 Claims**



Cladding for a mass of particles that are bound together solely by friction. The cladding is preferably in the shape of elongated channel members which have opposed side walls and a curved front wall. The curvature of the front wall is semi-elliptical. The side walls of adjacent channel members are superimposed on each other and the particles and channel members are retained by friction.

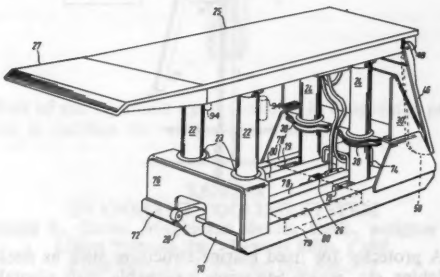
3,570,254
METHOD AND MEANS FOR PROTECTING AN EARTH SURFACE AGAINST SCOUR
Lee A. Turzillo, 2078 Glengary Road, Bath, Ohio 44313
Filed Jan. 17, 1969, Ser. No. 792,175
Int. Cl. E02b *3/12*
U.S. Cl. 61—38 **17 Claims**



Method and means for forming protective liner body on an earth situs. Porous fabric formed and/or shaped in one of a number of ways as closed container about quantity of loose filler material, such as aggregate. Pressurized, hydraulic cement mortar pumped into formed container to permeate the filler material and expand anchoringly restrained container walls, until fluid mortar oozes through fabric pores. Fluid hardens into solid liner body with filler material discretely dispersed therein.

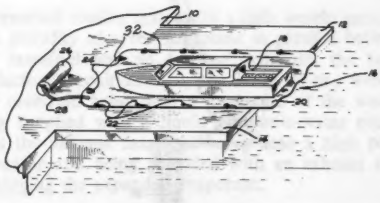
3,570,255
MINE ROOF SUPPORT
Peter Shuttleworth, Hornsea, England, assignor to Mastabar Mining Equipment Company Limited, Hull, England
Continuation-in-part of application Ser. No. 632,755, Apr. 21, 1967. This application June 10, 1968, Ser. No. 735,698
Int. Cl. E21c *41/00;* **E21d** *11/00, 23/20*
U.S. Cl. 61—45 **19 Claims**

An advancing mine roof support having a solid canopy which is supported above a base frame by a plurality of hydraulic props, mounted at the front and rear of the base frame, which are extendable to raise and lower the canopy. The rear of the support is enclosed by an upstanding shield of wrap-around configuration having two side walls and a sloping rear wall, the shield and base frame together forming a shoe assembly and, with the canopy, serve to protect the interior of the support from roof falls and the flushing of the caved waste. Further protection is afforded by a flap, hinged to the rear of the canopy and arranged to rest against the inclined rear wall of the shield. The flap may include side wall portions to overlie the sides of the shield and prevents waste from entering between the canopy and shield when the



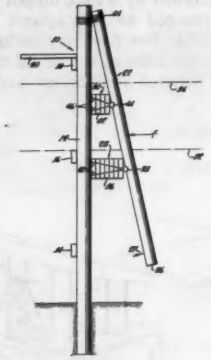
former is raised. The base frame is of sledge like construction, having two side members or runners, linked by one or more lateral cross beams. Hinged or lost motion connections are provided between the ends of the props and the canopy and base frame and between the flap and the canopy and hydraulic ram means is conveniently mounted on the base frame for connecting to a conveyor framework or the like, to extend or retract the support relative to the framework and face being worked.

3,570,256
INFLATABLE BERTH
Kenneth L. Thompson, Huntington Beach, Calif., assignor to Ye Dock Master, Inc.
Filed July 15, 1969, Ser. No. 841,704
Int. Cl. B63c *1/00;* **E02c** *3/00*
U.S. Cl. 61—48 **6 Claims**



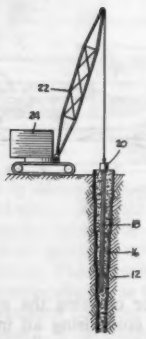
An inflatable berth for covering the water-submerged portion of a boat hull, comprising an inflatable, waterproof, flexible envelope, having a quilted interior surface adapted to generally conform to the configuration of a boat hull, and means for inflating the envelope for close contact of the quilted surface with the boat hull whereby to entrain water against the hull for stagnation of the entrained water.

3,570,257
DOCK AND DOLPHIN PROTECTOR
Grant W. Walker, 4339 Lancey Court, Sacramento, Calif., and Duane B. Ford, 2811 Hocking St., Placerville, Calif. 95667
Filed Sept. 17, 1968, Ser. No. 760,143
Int. Cl. E02b 3/22
U.S. Cl. 61—48 1 Claim



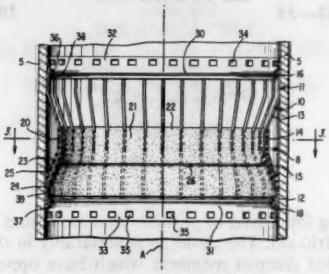
A protector for fixed marine structures such as docks, dolphins, etc., which comprises a movable shaft pivotally mounted at one end and freely movable at the other and at least one non-energy storing energy absorption unit between the fixed marine structure at the shaft, the energy absorbing unit comprising a plurality of hollow bodies formed of mildly resilient material normally filled with water and having an orifice which is sized and disposed to permit escape of water from the body at a limited rate commensurate with the severity of impact of a vessel against the movable shaft is disclosed.

3,570,258
METHOD AND APPARATUS FOR VIBRATING CONCRETE COLUMNS
Frank M. Fuller, Washington Township, Bergen County, N.J., assignor to Raymond International, Inc., New York, N.Y.
Filed Nov. 25, 1968, Ser. No. 778,521
Int. Cl. E02d 5/38
U.S. Cl. 61—53.52 1 Claim



Method and apparatus for vibrating a long slender vertical column of freshly placed concrete characterized by lowering an elongated rod having a vibrator at the upper end thereof down into the wet concrete.

3,570,259
ANNULUS SEAL AND PILE WIPER
Ellis B. Thaxton, Arlington, Tex., assignor to Oil States Rubber Co.
Filed Nov. 13, 1969, Ser. No. 876,246
Int. Cl. E02b 17/00; B63b 21/50
U.S. Cl. 61—63 9 Claims

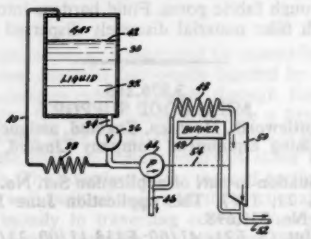


A seal for sealing the annulus between a pile and a hollow tubular member such as a platform leg or a skirt guide through which it extends, the hollow members being located, for instance, at the bottom of a marine drilling platform secured by means of piles to the floor of the sea, and the annulus between each hollow member and pile through it being poured full of cement above the seal when the platform has been moved into place and the piles have been driven.

3,570,260
HEAT PUMP
John O. Smith, Swampscott, and Bernard A. Gruber, Boxford, Mass., assignors to Monsanto Research Corporation, St. Louis, Mo.
Continuation of application Ser. No. 407,442, Oct. 29, 1964. This application Oct. 30, 1967, Ser. No. 679,258
Int. Cl. F25d 5/00; H01m 27/14
U.S. Cl. 62—4 6 Claims

A system and method for transferring heat between an enclosure and an exterior heat sink. The method involves operating a fuel cell within an enclosure to be cooled, on a fuel selected from hydrogen or hydrazine and an oxidant selected from nitric acid or nitrogen tetroxide and expending the electrical output of the cell in driving an electrical resistance located in an exterior heat sink.

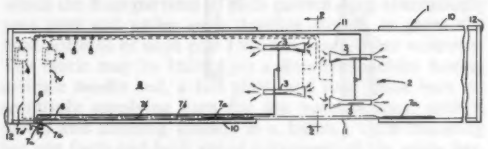
3,570,261
CRYOGENIC PUMPING SYSTEM
Everett H. Schwartzman, 724 Cloyden Road, Palos Verdes Estates, Calif. 90274
Continuation-in-part of application Ser. No. 504,349, Oct. 24, 1965. This application Apr. 14, 1969, Ser. No. 815,543
Int. Cl. F17c 7/02
U.S. Cl. 62—53 5 Claims



A pumping system is disclosed for use in association with cryogenic fluid, to accomplish fluid flow by utiliza-

tion of the negative energy stored by the cryogenic fluid. A heat exchange means receives the cryogenic fluid to gasify a quantity thereof and thereby drive a turbine which is connected to motivate a pump. One embodiment includes a burner to supply additional heat to the heat exchanger upon combination of spent gas from a turbine. In another embodiment a second heat exchanger is provided across the fluid interface of a cryogenic tank so as to pressurize the tank. Various check and other valves are also incorporated in the embodiments disclosed for controlling the flow of the fluid.

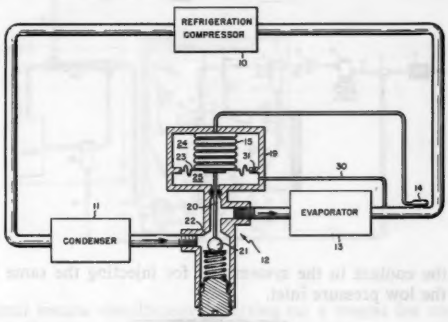
3,570,262
REFRIGERATION ARRANGEMENT
Harold E. Gramse, Chicago Heights, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Original application Sept. 22, 1967, Ser. No. 669,819, now Patent No. 3,447,336, dated June 3, 1969. Divided and this application Nov. 25, 1968, Ser. No. 785,847
Int. Cl. F25d *17/06*
U.S. Cl. 62—89 **6 Claims**



A refrigeration arrangement for a railroad car comprising a source of liquid nitrogen under a vapor pressure attendant to delivery of the nitrogen, under thermostatic control, to a converging atmospheric collector disposed within the car, the collector comprising a heat exchanger including encircling coils of the liquid nitrogen about the collector's scoop, the trailing end of the coil being connected with a tube of low thermal conductivity and low coefficient of friction and extending into the scoop from its widened end to its shortened end, a venturi tube being connected to the end of the scoop and the exiting end of the tube having a nozzle being surrounded by the conical venturi tube end portion of the scoop to develop a venturi or suction action and drawing the atmosphere within the car into the scoop for cooling of the atmosphere and dehumidifying same and for depositing moisture in the form of ice and snow on the interior surface of the scoop which is of high thermal conductivity material, the venturi tube being of low thermal conductivity material and receives the atmosphere and the liquid nitrogen which expands to a gas in the venturi throat, the exit end of the venturi tube being coupled to an exhaust tube opening into the car, the exhaust tube being of low thermal conductivity and having an outside air tube connecting with its entrant part and with an outside air control valve on the car for mixing of outside air and the car atmosphere and nitrogen gas for dispersal into the car environment.

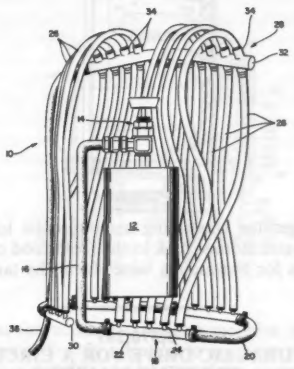
3,570,263
THERMAL EXPANSION VALVE WITH FEEDBACK FOR STABILIZING A REFRIGERATION SYSTEM
James R. Tobias, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Apr. 28, 1969, Ser. No. 819,848
Int. Cl. F25b *41/04*
U.S. Cl. 62—211 **4 Claims**

A thermal expansion valve for a refrigeration system having a temperature bulb for responding to superheat and an external equalizer with means associated with the temperature and pressure responsive portions of the actuator valve for temporarily offsetting some of the



effect of the superheat upon a change in evaporator pressure to stabilize the refrigeration system.

3,570,264
EVAPORANT COOLING SYSTEM
Daniel L. Curtis, Manhattan Beach, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif.
Filed Mar. 13, 1969, Ser. No. 806,970
Int. Cl. F25d *23/12*
U.S. Cl. 62—259 **3 Claims**

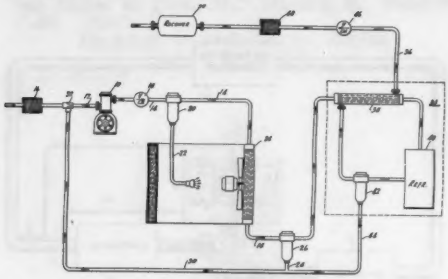


An evaporant cooling system for a light weight garment having a plurality of tubes connected in parallel between an inlet manifold and an exhaust manifold, the tubes being selectively positioned on the body of the wearer, the inlet manifold being near a low point of the wearer for being supplied with a liquid ammonia-water evaporant, and the exhaust manifold being near a high point of the wearer and being provided with an exhaust tube for discharging the expended evaporant.

3,570,265
COMPRESSOR COOLING SYSTEM
Howard J. Henry, Sidney, and Charles W. Berkoben, Troy, Ohio, assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed Apr. 21, 1969, Ser. No. 817,856
Int. Cl. F28d *5/00*
U.S. Cl. 62—304 **6 Claims**

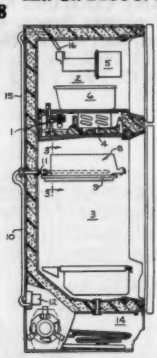
A self-stabilizing cooling system for air compressors embodying evaporative cooling, and in which means are provided for automatically obtaining condensed water

vapor from the atmosphere in required amounts for cooling purposes, means also being provided for recirculating



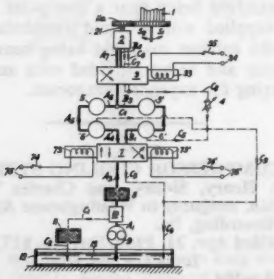
the coolant in the system and for injecting the same into the low pressure inlet.

3,570,266
REFRIGERATOR INCLUDING ICE MAKER WATER RESERVOIR
Robert J. Alvarez and Julius B. Horvay, Louisville, Ky., assignors to General Electric Company
Filed June 2, 1969, Ser. No. 829,361
Int. Cl. F25c *1/00*
U.S. Cl. 62—338 **7 Claims**



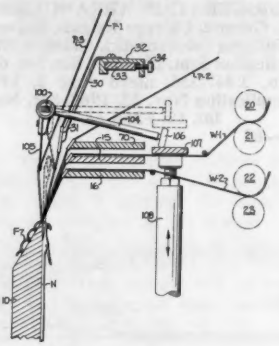
A refrigerator containing an automatic ice maker includes a water storage tank in the fresh food compartment and means for conducting water from the tank to the ice maker.

3,570,267
HYDRAULIC DRIVE FOR A CIRCULAR KNITTING MACHINE
Jiri Kurka, Trebic, Czechoslovakia, assignor to Elitex-Zavody textilniho strojirenstvi generalni reditelstovi, Liberec, Czechoslovakia
Filed Jan. 16, 1969, Ser. No. 791,608
Int. Cl. D04b *9/00*
U.S. Cl. 66—56 **12 Claims**



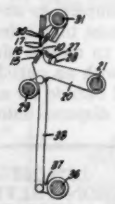
The needle cylinder of a circular knitting machine is rotated by a fluid operation motor whose speed and direction of rotation is controlled by valve means, including program controlled valves.

3,570,268
YARN GUIDE MEANS FOR CIRCULAR WARP KNITTING MACHINE
Federico Sanfeliu Nogues, Avenida Generalisimo Franco 606, Barcelona, Spain
Filed Nov. 7, 1968, Ser. No. 773,995
Int. Cl. D04b *25/02*
U.S. Cl. 66—81 **12 Claims**



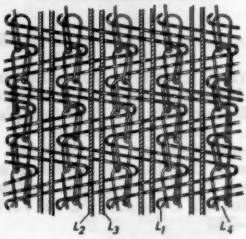
The circular warp knitting machine is provided with main yarn guiding means to guide base warp yarns to the needles so that a tubular seamless base fabric is formed of interconnected stitch chains. Additional yarn guide means in the form of three auxiliary yarn guide devices are provided for selectively knitting floating and inlaying additional pattern or fancy yarns with the base warp yarns in selected portions of the tubular fabric to form clusters of designs, vertical stripes, or reinforcements in selected portions of the fabric. The three auxiliary yarn guide devices may be operated together or separately to form various patterns in the tubular fabric.

3,570,269
MEANS FOR AND METHOD OF OPERATING THE NEEDLES OF WARP KNITTING MACHINES
John D. Wenrich, Fleetwood, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed May 5, 1969, Ser. No. 821,784
Int. Cl. D04b
U.S. Cl. 66—86 **4 Claims**



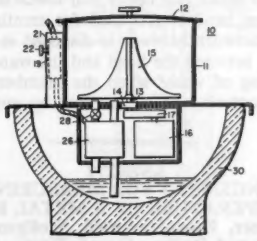
Means for and a method of operating pivoted latch needles of a warp knitting machine along a knitting path in which the latches of the needles are opened and held in open positions by the stitches of one course of a fabric formed by the needles while yarn is lapped around the needles for the next course of stitches of the fabric.

3,570,270
WARP KNIT FABRIC
Peter Koppenburg, Buchenweg 2, Obertshausen, near Offenbach am Main, Germany
Filed Dec. 26, 1968, Ser. No. 787,130
Claims priority, application Germany, Jan. 3, 1968, P 16 35 877.3
Int. Cl. D04b 21/20
U.S. Cl. 66—193 6 Claims



A warp knit fabric in which wales of warp stitches are connected by diagonal floats of pattern yarns which also anchor standing threads between adjacent wales, and in which the float portions of each pattern yarn alternatingly pass over and under each standing strands in pairs, the float portions of each pair following each other walewise. The fabric may be knitted on a Raschel machine having a single needle bed, a fall plate, and four guide bars respectively supplying yarn for the warp stitches, pattern yarns, and standing threads in a knitting cycle requiring but one forth-and-back swing movement of the guide bar.

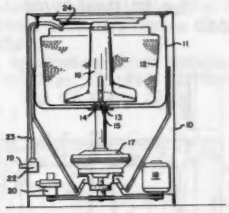
3,570,271
SMALL CAPACITY CLOTHES CLEANING OR RINSING APPARATUS
Edward L. Brown, Carmel, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 17, 1969, Ser. No. 791,900
Int. Cl. D06f 13/02
U.S. Cl. 68—3 5 Claims



A diaper or small clothes load rinsing apparatus which utilizes the water from a reservoir type source such as a water closet. The apparatus is characterized by the provision of a tub and pump for transferring water from the water closet to the tub and further, by the provision of a dump valve which serves to drain the dirty water from the tub back into the water closet for disposition thereof.

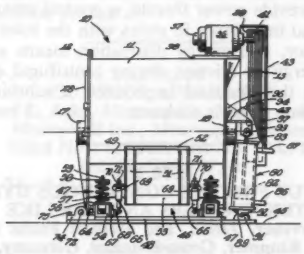
3,570,272
WATER SAVER AND SUDS LOCK ELIMINATION SYSTEM FOR WASHING MACHINES
Peyton W. Douglas, Bemus Point, N.Y., assignor to Blackstone Corporation
Filed Oct. 10, 1968, Ser. No. 766,390
Int. Cl. D06f 23/04, 33/02
U.S. Cl. 68—12 3 Claims

A washing machine is provided with an outer fluid containing tub, an inner concentric spinner tub for receiving clothes to be washed rotatably mounted in the outer tub, means for introducing and removing water from the outer tub, a nozzle for spraying water into the spinner tub and



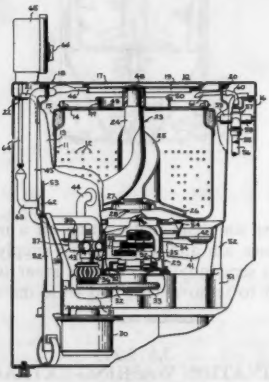
control means simultaneously acting on a means for rotating the inner tub and a means for supplying water to the nozzle to sequentially rotate the inner tub and spray water therein to remove suds and rinse the clothes.

3,570,273
COMBINATION WASHING-EXTRACTING MACHINE
Max Hertig, Syracuse, N.Y., assignor to G. A. Braun, Inc., Syracuse, N.Y.
Filed Nov. 26, 1968, Ser. No. 778,992
Int. Cl. D06f 37/20
U.S. Cl. 68—23.1 11 Claims



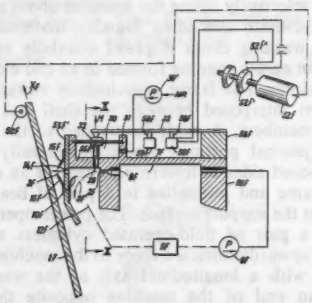
A combination washing-extracting machine including a mounting frame directly attached to an outer shell of the machine and pivotally secured to a floor or support surface and power operated means cooperating with the pivotal mounting to form a second order lever arrangement for selectively tilting the machine about a transverse axis to facilitate unloading laundry material contained within a washing drum disposed coaxially of the shell, through an egress opening formed in an end closure of the washing drum. The frame may include vibration absorbing means interposed between the shell and lowermost framing members. A shaft is attached to the frame and includes journal portions projecting laterally outwardly from opposed sides at lowermost edges of an end portion of the frame and journalled in a pair of bearing blocks secured to the support surface. The power operated means includes a pair of fluid-operated cylinders arranged to apply an upwardly directed force to the machine at a point coplanar with a longitudinal axis of the washing drum and at an end of the machine opposite the pivotally mounted shaft. Also, the ingress and egress opening formed in an end of the washing drum is selectively closed by a releasable door means hinged at a lower edge portion to form a shelf in its open position across which laundry material slides during the unloading process.

3,570,274
INFINITE SPEED CONTROL FOR AUTOMATIC WASHER
Joseph C. Worst, Louisville, Ky., assignor to General Electric Company
Filed Apr. 24, 1969, Ser. No. 818,918
Int. Cl. D06f *29/00*
U.S. Cl. 68—23.7 9 Claims



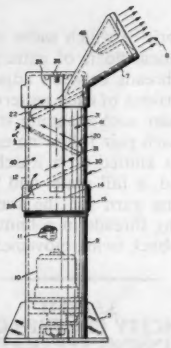
A variable speed drive means is provided for an automatic washer having a rotatable container, an agitation means mounted in the container, and a transmission means adapted to selectively drive the agitation means and container for washing fabrics and centrifugally extracting fluid from the fabrics. The improvement comprises a wound rotor motor connected to the transmission means to provide power thereto, a control means to vary the electrical impedance in series with the rotor windings of the motor, and energy dissipation means adapted to remove energy by friction during centrifugal extraction. By varying the electrical impedance, a substantial variation in motor speed is achieved.

3,570,275
APPARATUS FOR THE CONTINUOUS DYEING OF TEXTILE WEBS AND THE LIKE
Friedrich Weber, Zittau, and Helmut Fuchs and Karl-Joachim Kummer, Gross-Schonau, Germany, assignors to VEB Halbmond-Teppiche, Oelsnitz Vogtland, Germany
Original application Feb. 8, 1965, Ser. No. 431,129, now Patent No. 3,443,878, dated May 13, 1969. Divided and this application Sept. 16, 1968, Ser. No. 796,622
Int. Cl. D06p *5/00*
U.S. Cl. 68—205 5 Claims



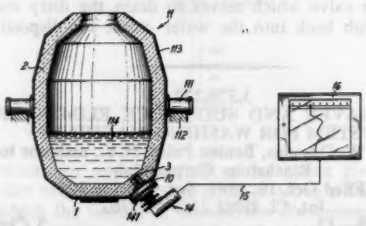
An apparatus for pattern dyeing a substantially continuous web in which a continuous stream of a liquid dyestuff is circulated at a treating station along a closed path proximal to or ending against the web and, at selected locations transversely of the web, portions of the dyestuff stream are deflected away from or against the web under the control of a pattern programmer while the balance of the dyestuff stream continues uninterrupted along the closed path. Programmed pneumatic jets, electrostatic or electromagnetic deflection devices, or simple stream blocking and unblocking elements are used to control the deflection of the stream.

3,570,276
PORTABLE CLOTHES STEAMER WITH WATER GAGE
Bernard Frank, Shamokin, Pa., assignor to Franzus Industries, Inc., Shamokin, Pa.
Original application Feb. 27, 1968, Ser. No. 708,657, now Patent No. 3,485,065, dated Dec. 23, 1969. Divided and this application Aug. 29, 1969, Ser. No. 854,241
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. D06c *1/00*; D06f *75/00*
U.S. Cl. 68—222 4 Claims



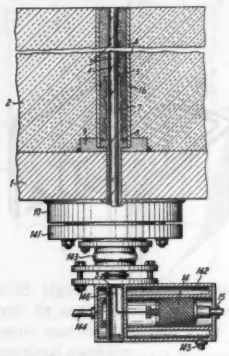
A housing construction is provided for a portable appliance that steams clothes to remove wrinkles. The housing comprises an uprightly disposed cylindrical type hollow watertight member with an electrically heated water chamber inside and which has upper and lower interfitting sections. A steam head is provided for treating a garment and a baffle network between is disposed in a steam conveyance path between the head and the water chamber to prevent spilling of water when the member is tilted and to prevent sputtering of steam flow by condensation of water.

3,570,277
ARRANGEMENT FOR MEASURING THE TEMPERATURE OF A METAL BATH
Wolfgang Dorr, Essen-Stadtwald, Wolfgang Recknagel, Dortmund, and Rudiger Scheel, Ergste, Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany
Filed May 26, 1969, Ser. No. 827,783
Int. Cl. G01j *5/04*
U.S. Cl. 73—355 5 Claims



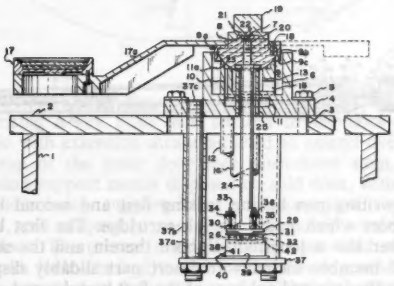
An arrangement for measuring in a continuous manner the temperature of a liquid metal bath, according to which

a rod of light permeable high temperature and corrosion-resistant material extends through the wall of the vessel and in the interior of the vessel is embedded in a mass of



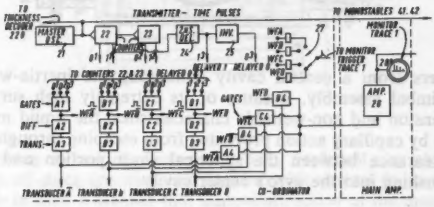
alkali-free oxides with a high melting point such as zirconium oxide or zirconium silicate while at the end of said rod there is arranged a color pyrometer.

3,570,278
UNIVERSAL BALANCING MACHINE WITH ELECTROMAGNETIC HOLD
Joseph P. Lannen, 51300 Pontiac Trail, Wixom, Mich. 48096
Filed Aug. 5, 1969, Ser. No. 852,965
Int. Cl. G01m *1/12*
U.S. Cl. 73—483 **5 Claims**



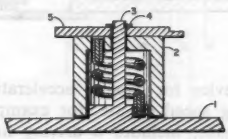
A workpiece carrier is supported for tilting travel upon an arcuately spherical, universal pivot, which pivot rests upon a seat having a corresponding sphericity. Said seat is formed in a casting mounted upon the top surface of a housing, said pivot carries, as part of a unit, the workpiece carrier, a rod elongated downwardly through and beneath said surface to reciprocably swing with said carrier in a simple harmonic motion through a path of travel responsive to, and determined by, the imbalance of a workpiece on the carrier. An annular member having an annular, spherically concave surface is carried concentrically on the lower end of said rod to complete said unit. An electromagnetic device is disposed beneath said surface to automatically and repeatedly release and engage said member to interrupt said travel and reduce, with each engagement, the momentum imparted to the unit, to quickly allow said unit to attain a tilted attitude in which the radial direction and amount of imbalance can be determined, as by a measuring device carried upon the pivot.

3,570,279
APPARATUS FOR AUTOMATICALLY RECORDING THE THICKNESS OF A PRODUCT AND THE LOCATION OF DEFECTS THEREIN
David H. Davies, Corby, England, assignor to Stewarts and Lloyds Limited, Glasgow, Scotland
Continuation-in-part of application Ser. No. 535,766, Mar. 21, 1966. This application June 20, 1969, Ser. No. 835,053
Claims priority, application Great Britain, Jan. 2, 1963, 253/63; Mar. 25, 1965, 12,704/65
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.9 **9 Claims**



For automatically recording the thickness of a product and the location of a defect in the product, an apparatus and method are provided by which the surface of the product is scanned by ultrasonic pulses, the time interval between selected reflected pulses is measured and used to operate recording means to provide, on a recording medium moved in synchronism with the scanning, a record of the thickness and the defect, and a record of the position of the defect relative to the other two dimensions of the product.

3,570,280
CONTROL APPARATUS
Robert L. Aske, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 6, 1968, Ser. No. 773,714
Int. Cl. G05g *17/00*
U.S. Cl. 74—3.5 **5 Claims**

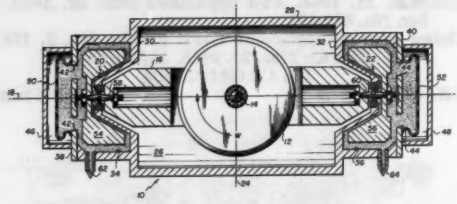


A composite material comprising an elastic material in contiguous relationship with a material having the property of creep under stress. The material is contemplaced for use in various configurations to serve a time delay function.

3,570,281
GYROSCOPE HAVING LIQUID METAL SUSPENSION MEANS
William C. Albert, Waldwick N.J., assignor to Singer-General Precision, Inc., Little Falls, N.J.
Filed Dec. 26, 1968, Ser. No. 786,944
Int. Cl. G01c *19/20*
U.S. Cl. 74—5 **11 Claims**

A single degree-of-freedom gyroscope is provided having its gimbal supported for rotation by a pair of floated trunnions axially displaced along the gyro's output axis. The floats which are solid and homogeneous are suspended in float chambers filled with liquid metal under a positive static pressure. Each float is connected to the gimbal

by a shaft comprising a spherical center portion and two axially extending tapered shank portions. The spherical center portion is constrained to rotate with the gimbal in a journal bushing mounted in a wall in the gyro casing with each wall separating the respective float chambers from a central cavity containing the inertia-wheel gimbal assembly. Because of its extremely high surface tension and non-wettable characteristics, the liquid metal is by capillary action prevented from escaping through the clearance between the spherical shaft portion and the bushing into the gyro's center cavity.

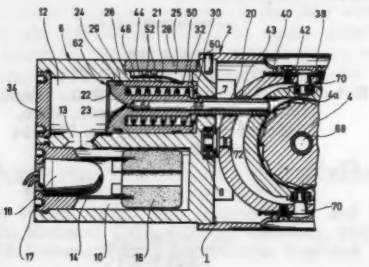


3,570,282

GYRO-DRIVING AND CAGING DEVICE

Rudolf Knopp and Herbert Fuhr, Munich, Germany, assignors to Bolkow-Gesellschaft mit beschrankter Haftung, Ottobrunn, near Munich, Germany

Continuation of application Ser. No. 680,413, Nov. 3, 1967. This application Sept. 5, 1969, Ser. No. 856,904
Claims priority, application Germany, Dec. 15, 1966, B 90,324
Int. Cl. G01c *19/26*
U.S. Cl. 74—5.12 **2 Claims**



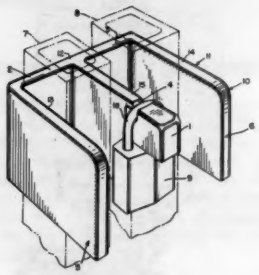
A caging device for rapidly accelerating a gyro up to an operating speed or use, for example, in a flying body or a missile, includes a driving mechanism contained in a separate housing adapted to be attached to the housing of the gyro. The driving mechanism includes a piston-nozzle member having a bore therethrough and formed as a nozzle tube which is slidable in a chamber of the drive housing. An additional chamber alongside the piston chamber contains a solid charge and an igniter fuse. The charge is of a size to burn off at a rate sufficient to provide a high flow of compressed gasses which are passed through an opening between the chambers into the piston chamber where the gas initially acts on the piston to displace it slightly in order to release a locking detent which prevents retraction of the nozzle tube from the gyro housing into the nozzle tube chamber. At the initial position of the nozzle tube piston, the end thereof extends into the gyro chamber and through aligned openings of two gyro-support gimbals so that the gimbals are locked against movement during the initial start-up of the gyro. After the solid charge has burned off, the gas pressure reduces sufficiently to permit a returning spring to act on the piston member to pull the tube portion out of the gimbals to permit their free pivotal movement.

3,570,283

SLIDING GATE PROTECTIVE LATCH

Barnet Males, 2070 Bronx Park, Bronx, N.Y. 10462

Filed June 30, 1969, Ser. No. 838,371
Int. Cl. E05b *73/00;* **E05c** *19/18*
U.S. Cl. 70—14 **10 Claims**



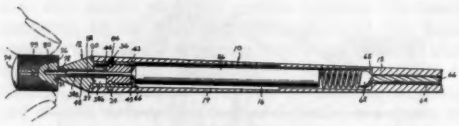
This disclosure relates to latch particularly adapted to secure together adjacent posts of a sliding gate in a manner to be substantially tamper-proof. The latch is constructed to slip over two adjacent gate posts and then have a conventional padlock applied thereto in a manner wherein the padlock prevents the release of the gate posts and at the same time the padlock is in a protected position.

3,570,284

WRITING PEN LOCK

Grover E. Hendricks, Niles, Mich., assignor to Rolamech Patents, Ltd., Chicago, Ill.

Filed Jan. 9, 1969, Ser. No. 790,025
Int. Cl. A44b *17/00;* **E05b** *73/00*
U.S. Cl. 70—58 **8 Claims**



A writing pen having locking first and second barrel members which house an ink cartridge. The first barrel member has a longitudinal bore therein and the second barrel member includes an insert part slidably disposed within the longitudinal bore of the first barrel member. An interlock member is slidably received within the insert part of the second barrel member and serves to cam a detent which is seated in a lateral bore in the insert part of the second barrel member into a recess in the first barrel member and thereby lock the barrel members together.

3,570,285

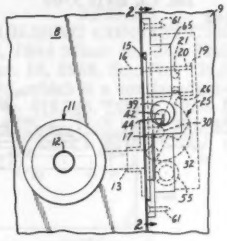
AUXILIARY DOOR LOCK

Paul M. Hawkins, Afton Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of application Ser. No. 771,089, Oct. 28, 1968. This application Feb. 20, 1969, Ser. No. 801,120
Int. Cl. E05b *59/04;* **G08b** *13/08*
U.S. Cl. 70—107 **12 Claims**

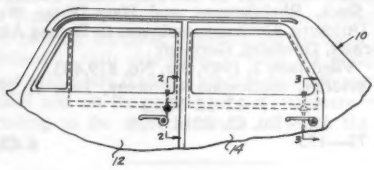
An auxiliary lock for two relatively movable building members comprising a slidable bolt movable into locking position upon closure of the members and operation of an existing lock of a conventional type. The auxiliary

lock of the present invention also has a key-operated locking device to maintain the bolt of the auxiliary lock in closed position even upon subsequent disabling of the conventional lock. The lock of the present invention is



also provided with signaling means actuatable in the event one attempts to separate the closure members by exerting force upon one or the other of the members with the lock in secured position.

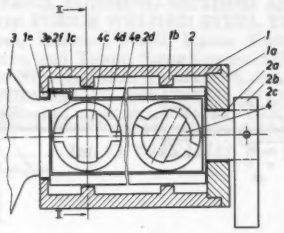
3,570,286
THEFT REDUCER LOCK MEANS
Kenneth L. Rohrbough, 1117 Montgomery St., St. Louis, Mo. 63106
Filed Aug. 30, 1968, Ser. No. 756,631
Int. Cl. G05g *5/00*
U.S. Cl. 70—181 **5 Claims**



A locking device for use with a vehicle and the like, comprising a key push lock secured to the door of a vehicle with extension means adapted to extend over the rod stop of the inner door lock push-down stem, and extension support means disposed on said door, with said extension being supported on said extension support means, and adapted to pass under the raised window in said door. The present device is further provided with a key push lock attached to the locking housing, which in turn is attached to the steering column housing. The key push lock has at its inner end a lock pin which extends forward into a locking hole to lock the steering column.

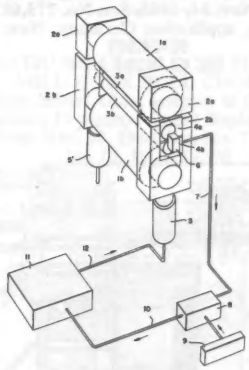
3,570,287
MAGNETIC LOCK WITH ROTATABLE LATCHING ELEMENT
Hermann Hallmann, Cologne, Germany, assignor to Huwil-Werke, Hugo Willach & Söhne, Bezirk, Germany
Continuation-in-part of application Ser. No. 569,212, Aug. 1, 1966. This application Oct. 17, 1969, Ser. No. 867,272
Claims priority, application Germany, July 31, 1965, H 56,738; Feb. 3, 1966, H 58,460; Jan. 16, 1969, P 19 01 968.2
Int. Cl. E05b *47/00*
U.S. Cl. 70—276 **15 Claims**

Magnetic latching elements in the form of rotatable discs or cylinders are located in chambers formed in the core of a lock, the discs or cylinders having a discontinuity which is aligned either with a notch, formed on a movable part of the core, or in the housing, so that, when the notch and the projection are aligned due to the presence of a key having zones of magnetization which rotate the latching elements to proper position, relative movement (rotation, or axial movement) of the element carrying the discs, and the projection is possible, thus



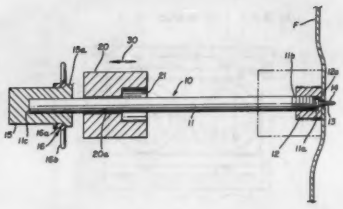
operating a locking element or bolt. Preferably, a plurality of discs are used and located with respect to each other in such a manner that mutual attraction of the magnetic zones of the discs cause their remaining in a position inhibiting such movement upon the absence of a key.

3,570,288
ROLLING-MILL ASSEMBLY WITH IMPROVED CONTROL SYSTEM
Friedrich Fischer, Franz Gutlbauer, Robert Kracht, and Georg Engel, Essen, Germany, assignors to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed Oct. 18, 1968, Ser. No. 776,303
Claims priority, application Germany, Oct. 21, 1967, P 16 02 033.0
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. B21b *37/12*
U.S. Cl. 72—8 **8 Claims**



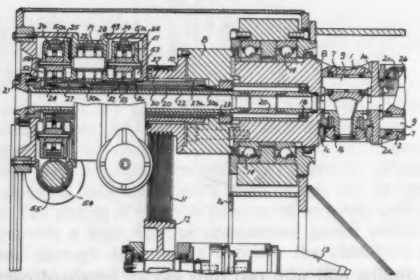
A rolling mill with two rolls has an improved control assembly which comprises electromagnetic or photoelectric sensors which meter the gap between the rolls while remaining out of contact with them. The output of this sensing arrangement is compared with a reference value to yield an error signal which is fed to an adjustment mechanism to change the roller gap if necessary. Further sensors for metering a bending in the rolls can be provided and coupled with a device for straightening the roll. In addition a gauge measuring the thickness of the rolled workpiece can be used to provide a cross check on the functioning of the apparatus.

3,570,289
BODY WORKING TOOL
Steven L. Smyers, 1670 Faye Road, Akron, Ohio 44306
Filed Jan. 23, 1969, Ser. No. 793,394
Int. Cl. B21j *13/02*
U.S. Cl. 72—479 2 Claims



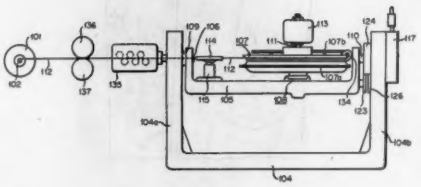
A body working tool for repairing dents in vehicular bodies. The tool includes an elongated body portion having one end adapted to be secured to the vehicle in the area to be repaired and having gripping means on its opposed end. Stop members are carried adjacent two opposed ends of the body member and a weighted impact member is slidingly received on the body itself and adapted to be slid along the body into and out of contact with the respective stop members. The force of the impact member striking the stop members will either depress the area of the vehicle body to which the tool is attached or pull it outwardly depending upon the direction of movement of the impact member.

3,570,290
STRAIGHTENING MACHINE FOR ROUND WORKPIECES
Heinz Hartkopf, Solingen, Germany, assignor to Th. Kieserling & Albrecht, Solingen, Germany
Filed Nov. 14, 1968, Ser. No. 775,687
Claims priority, application Germany, Nov. 24, 1967, K 64,004
Int. Cl. B21d *3/04*
U.S. Cl. 72—78 11 Claims



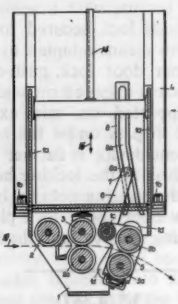
A straightening machine for round tubular or bar stock wherein the straightening rolls are adjustable radially toward and away from as well as angularly with reference to the path of travelling stock. The rolls are disposed in groups and each group of rolls can be moved radially or angularly by one of several input shafts which effect adjustments of roll holders by way of planetary transmissions.

3,570,291
METHOD OF MANUFACTURING EXTENSION SPRINGS
Heijiro Shiguma, Yokohama-shi, Japan, assignor to NHK Spring Co., Ltd., Yokohama, Japan
Filed Oct. 7, 1968, Ser. No. 765,405
Int. Cl. B21f *3/04*
U.S. Cl. 72—142 4 Claims



A circular section spring steel wire is wound around a mandrel in such a way that adjacent turns of the spring steel wire on the periphery of the mandrel are in close contact with each other and are simultaneously twisted in such a direction of rotation that the spring steel wire turns on the mandrel when it is wound on the mandrel, the result of a great amount of initial tension being imparted to the extension spring.

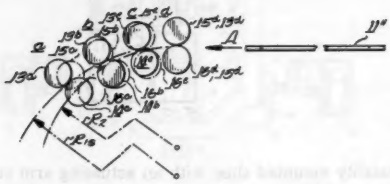
3,570,292
DEVICE FOR THE CONTINUOUS PREBENDING, PARTICULARLY, OF HOT-ROLLED PIPES
Gerhard Steck, Rheinhausen, and Hans-Dieter Weitermann, Duisburg, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany
Filed June 2, 1969, Ser. No. 829,483
Claims priority, application Germany, June 7, 1968, P 17 52 506.3
Int. Cl. B21d *7/08*
U.S. Cl. 72—173 6 Claims



A device for the continuous prebending, particularly, of hot-rolled pipes which are to be wound on a subsequent device, includes a multi-roll system having a common drive which is coupled with the supporting frame of the device. The supporting frame mounts a magazine containing a plurality of bending and calibrating rolls arranged in pairs for bending a pipe passed therebetween. The magazine is slidably mounted on the frame so it may be shifted along the frame. One cooperating pair of a calibrating roller and a bending roller is mounted on a movable holder of the magazine. The holder is pivotally mounted so that it will be shifted to vary the bending curve radius of operation of the rollers in accordance with the shifting

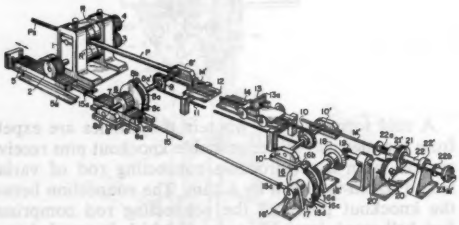
movement of the magazine on the frame. To accomplish this, the holder is connected to a lever having a roller which is confined in a slot defined on the frame.

3,570,293
BUILDING CONSTRUCTION
John F. Blaski, 1844 Miner St., Des Plaines, Ill. 60016
Application Apr. 18, 1968, Ser. No. 729,866, now Patent No. 3,505,765, which is a continuation-in-part of application Ser. No. 415,748, Dec. 3, 1964. Divided and this application Aug. 4, 1969, Ser. No. 870,722
Int. Cl. B21b *15/00*
U.S. Cl. 72—177 **5 Claims**



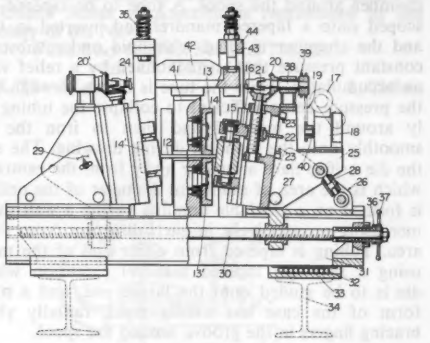
A building construction panel in the configuration of a portion of a frustum of a cone, having curvatures in two directions at right angles to each other, is formed by a series of flanged rollers in succession from a blank piece of sheet metal having arcuate outer and inner edges the radii of which conform to the slant lengths of the conic frustum. A series of such panels are attached end-to-end to form the conic frustums and the conic frustums are joined at their side edges to form the building. The flanged rollers are disposed on two mutually perpendicular radii and on the surface of an imaginary cone corresponding to the conic frustums of which the building is made.

3,570,294
PIPE ROLLING EQUIPMENT
Jintaro Shibata, 22–12 Ohmori-Kita 1-chome, Ohta-ku, Tokyo, Japan
Filed Dec. 4, 1968, Ser. No. 780,983
Claims priority, application Japan, Dec. 6, 1967, 42/77,940
Int. Cl. B21b *17/10*
U.S. Cl. 72—208 **7 Claims**



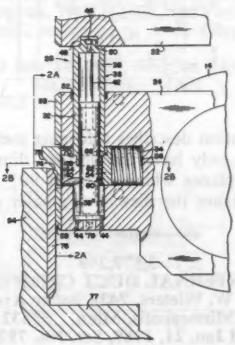
A pipe rolling mill for shrinkage of a metallic raw pipe to a required external diameter and thickness, wherein a raw pipe, having inserted therein a core rod or mandrel, is pinched between facing rollers. The pipe is initially deformed to an eccentric cross section and rotated through a certain angle while being pressed and drawn backwards. Then the said pipe is reduced along the mandrel surface while being drawn forwards, and its worked portion is extracted from the mandrel and pushed out by a pressing unit, the pipe thus gradually being rolled. The operation is automatically and continuously carried out.

3,570,295
SKELP WEDGE FORMING METHOD AND DEVICE FOR FORGE WELDED STEEL TUBE
Itsuo Hirose, Hidenori Horii, Kazuo Konishi, Kenichi Matsumoto, and Tetsuo Sata, Kawasaki-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha
Filed Sept. 17, 1968, Ser. No. 760,194
Claims priority, application Japan, Oct. 21, 1967, 42/67,628
Int. Cl. B21b *13/12*
U.S. Cl. 72—234 **10 Claims**



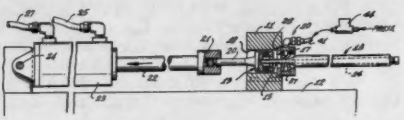
Skelp edge forming method and device wherein a skelp is fed through pressure rollers while edging rollers contact and form the edges of the skelp when the skelp is in its cold condition. The edge rollers are reversibly moved in an up and down direction during the skelp edge forming.

3,570,296
AUTOMATIC SPACER BLOCKS FOR ROLLING MILL WORK ROLL CHOCKS
John R. Buta, Salem, Ohio, assignor to Gulf + Western Products Company, Grand Rapids, Mich.
Filed Mar. 27, 1968, Ser. No. 716,581
Int. Cl. B21b *31/00*
U.S. Cl. 72—237 **9 Claims**



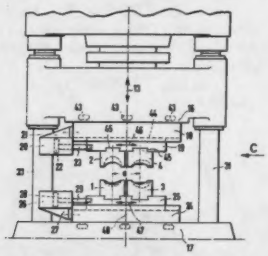
A rolling mill including spacer blocks between the work roll chocks automatically locked in place and retractable to hold or not hold the work rolls in spaced apart relationship.

3,570,297
DIE AND METHOD FOR DRAWING METAL TUBES
Raymond A. Matthews, 2332 Via Anacapa, Palos Verdes Estates, Calif. 90274
Filed Sept. 19, 1968, Ser. No. 760,823
Int. Cl. B21c 3/06
U.S. Cl. 72—276 17 Claims



A tube-drawing die and method of drawing tapered tubing using a conventional draw bench and a die assembly having a die ring in the form of a peripherally grooved nylon spool held in a case defining a pressure chamber around the spool. A tube to be tapered is telescoped onto a tapered mandrel and inserted in the die, and the chamber is filled with fluid under substantially constant pressure that is maintained by a relief valve or an accumulator, while the tube is drawn through the die, the pressure being sufficient to collapse the tubing initially around the mandrel and then to iron the tubing smoothly onto the mandrel during drawing. The ends of the die orifice flare arcuately away from the central land, which is the area of minimum diameter of the orifice and is formed on a yieldable annulus having a wall thickness increasing progressively in each direction from the land area. Tubing is tapered from either end of the mandrel, using a reversely tapered mandrel extension when the die is to be guided onto the larger end, and a modified form of the case has axially rigid, radially yieldably bracing fingers in the groove around the spool.

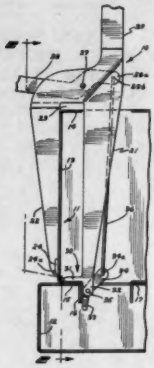
3,570,298
FORGING
Hermann Detzel, 110 Wilhelmstrasse, 7083 Wasseralfingen, and Alfred Maier, 38 Haupstrasse, 7081 Oberalfingen, both of Wurttemberg, Germany
Filed Sept. 24, 1968, Ser. No. 762,042
Int. Cl. B21j 5/02, 13/02; B21k 1/08
U.S. Cl. 72—360 12 Claims



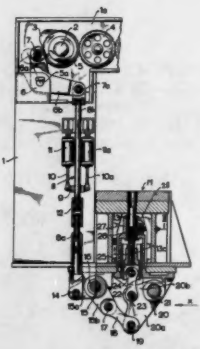
The specification describes a forging method using two die sets which only have the finished dimensions of the forging along planes which intersect 90° in the forging. Along other planes the dies have greater dimensions.

3,570,299
INTERNAL DUCT CRIMPER
Albert W. Wieters, 7438 Baker Ave. NE., Minneapolis, Minn. 55432
Filed Jan. 21, 1969, Ser. No. 792,310
Int. Cl. B21d 5/01
U.S. Cl. 72—409 6 Claims

A crimping device for bending and clenching edges of laterally extending ducts to main ducts including a bifurcated arm structure with a clenching device and anvil provided on the end of one of the arms with means for shifting the clenching member into clenching position against the anvil through the utilization of a connected arm and lever device. The clenching member includes a rotatably mounted shoe with an actuating arm connected thereto which actuating arm extends upwardly along the bifurcated arm to an operative position.

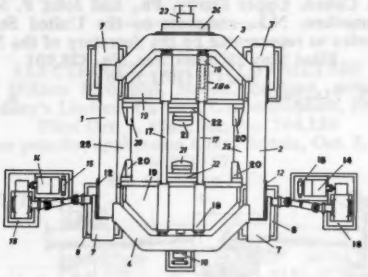


3,570,300
APPARATUS FOR EJECTING ARTICLES IN COLD FORMING PRESSES OR THE LIKE
Richard Schulte, Wuppertal-Hahnerberg, Germany, assignor to Th. Kieserling & Albrecht, Solingen, Germany
Filed Oct. 30, 1968, Ser. No. 771,917
Claims priority, application Germany, Nov. 9, 1967, K 63,854
Int. Cl. B21d 45/00; B21j 9/18; F16h 21/16
U.S. Cl. 72—427 10 Claims



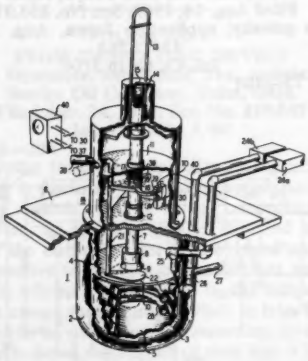
A cold forming press wherein the articles are expelled from the matrices by reciprocable knockout pins receiving motion from a reciprocable connecting rod of variable length which is driven by a cam. The connection between the knockout pins and the connecting rod comprises a first bell-crank lever one arm of which is coupled to the rod and the other arm of which is connected to a first link in such a way that the axes of the other arm and the first link make an angle of at least 150 degrees in the starting position of the connecting rod, a second bellcrank lever one arm of which is coupled to the first link, and a second link which couples the other arm of the second lever with a common pusher for the knockout pins and whose axis is at least nearly parallel to the axis of knockout pins in starting position of the connecting rod. Each knockout pin is adjustable axially with reference to the pusher.

3,570,301
GAG PRESS FOR STRAIGHTENING ROLLED SECTIONS
Friedrich Perner, Dahlbruch, Germany, assignor to Siegener Maschinenbau, G.m.b.H.
Filed Mar. 4, 1968, Ser. No. 710,383
Claims priority, application Germany, Mar. 4, 1967, P 16 27 597.1
Int. Cl. B21j 9/12
U.S. Cl. 72—453 **10 Claims**



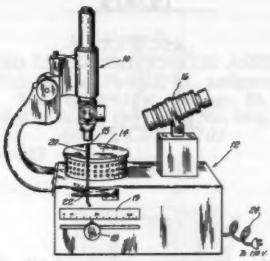
The gag press disclosed is employed for straightening heavy rolled sections and essentially comprises an hydraulically actuated gag for exerting pressure on a rolled section supported by liberally spaced supports. The gag and supports are each carried by platens that are adjustably interconnected by threaded tie-rods adapted for rotation. The platens are, in turn, slidably carried by a rotatable frame that is also adjustable in height. By rotating and adjusting the height of the frame, the gag press is located in a desired position for receiving and straightening the rolled section without imposing bending forces on associated roller tables or the like.

3,570,302
METHOD FOR MEASURING THERMAL DIFFUSIVITY
Harold A. Sauer, Hatboro, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed Sept. 20, 1968, Ser. No. 761,214
Int. Cl. G01n 25/00, 25/18
U.S. Cl. 73—15 **4 Claims**



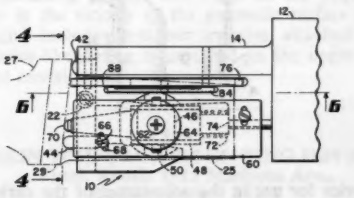
The thermal diffusivity and specific heat of materials in thin sections is measured at low and moderate temperatures by a transient heat flow method which employs a sample probe and a dual chamber vessel. A small diameter sample is held on the probe, which is supported in the upper chamber. After the sample has been equilibrated at a chosen temperature, it is quickly lowered, mechanically, through a trap into contact with a liquid in the lower chamber, which is isolated from the upper chamber, and which is maintained at a different temperature. The lowering is conducted in such a manner that only the under or near surface of the specimen is brought in contact with the liquid. The temperature-time history of the far surface, obtained from a thermocouple attached to the center of this surface, is recorded on an oscilloscope.

3,570,303
MEANS FOR PREPARING PREPREG GLASS ROVING FOR EVALUATION
Nathan Fried, Brooklyn, Julius Kaminetsky, Forest Hills, and Maurice Silvergleit, Brooklyn, N.Y., assignors to the United States of America as represented by the Secretary of the Navy
Filed May 6, 1968, Ser. No. 726,951
Int. Cl. G01n 1/00
U.S. Cl. 73—15.4 **2 Claims**



A technique for preparing preimpregnated glass roving for evaluation, including tensioning a specimen of the roving with about two pounds of force, heating the tensioned specimen with a heat source to about 100° C. in seconds, and coincidentally with the heating, illuminating the specimen and observing the illuminated specimen through an optical magnifier for quantity and behavior of entrained gas pockets.

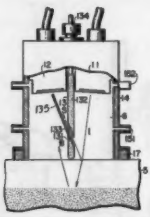
3,570,304
PROBE HOLDER ASSEMBLY FOR ULTRASONIC TESTING OF TURBOMACHINE BLADES
Ernest M. Mihalyak, West Haven, and Paul E. McMahon, Milford, Conn., assignors to Avco Corporation, Stratford, Conn.
Filed July 28, 1969, Ser. No. 845,228
Int. Cl. G01n 24/04
U.S. Cl. 73—67.5 **11 Claims**



The disclosure illustrates a probe for use in ultrasonic testing of a turbomachine blade secured at its root to a rotor. The probe comprises an elongated base and a

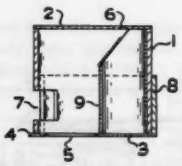
guide at one end for accurately positioning one side of the base relative to a blade to be tested. An ultrasonic probe is mounted on fulcrums in the base and is adapted to surface contact the blade at a given distance from its root. A cam mechanism supported by the base positively maintains the blade out of contact with the probe until the first end of the base is accurately positioned at the root of the blade. Additionally, a switch is actuated by the cam means to enable energization of the probe only when the first end of the base is positioned at the root of the blade.

3,570,305
APPARATUS FOR MEASURING DEPTH OF CHILLED LAYER ON CAST IRON ROLL
Soji Sasaki, Hitachi-shi, Japan, assignor to Hitachi, Ltd., and Hitachi Metals, Ltd., both of Tokyo-to, Japan
Filed Mar. 11, 1968, Ser. No. 712,089
Claims priority, application Japan, Mar. 20, 1967, 42/17,292
Int. Cl. G01n *9/24*
U.S. Cl. 73—67.7 **8 Claims**



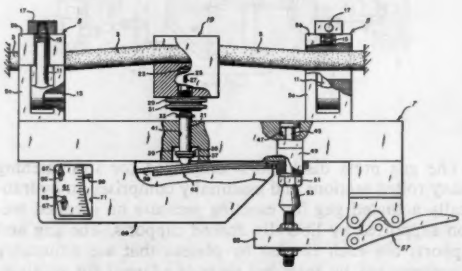
An apparatus for measuring the depth of the chilled layer on a cast iron roll by use of the ultrasonic pulse echo system which utilizes a T-R coupled probe, the improvement being characterized in that there is provided an adjustable slit in a baffle between the receiver and the transmitter so as to adjust an amount of the surface echo signals to be received independently of the boundary echo signals.

3,570,306
CARBURETOR TUNING DEVICE
Breck Bowles, Hampton Wick, England, assignor to Les Leston Limited
Filed Mar. 24, 1969, Ser. No. 809,667
Claims priority, application Great Britain, May 13, 1968, 22,688/68
Int. Cl. G01m *15/00*
U.S. Cl. 73—119 **3 Claims**



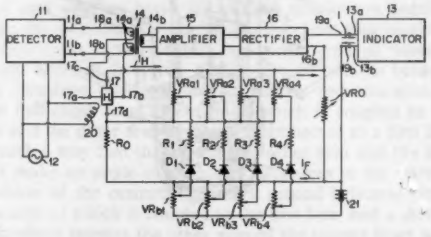
A device for use in the adjustment of the carburettors of internal combustion engines by producing a whistle sound signal. A cylindrical chamber covered at each end by a flat end wall. A first inlet in other end wall, and a second inlet through a side wall of the chamber. An axial whistle wall in the chamber from end to end having a whistle opening near the first inlet. A mask on the side wall of the chamber adjustable over the second inlet to vary its opening, thereby to vary the velocity of air flow from the first intake to the outlet until the whistle sound signal is produced. Then the air intakes of the carburettors are adjusted to produce the same whistle sound.

3,570,307
TENSIOMETER
Milton Cohen, Upper Darby, Pa., and John P. Malriat, Pennsauken, N.J., assignors to the United States of America as represented by the Secretary of the Navy
Filed May 29, 1969, Ser. No. 828,901
Int. Cl. G01l *5/06*
U.S. Cl. 73—144 **6 Claims**



A novel and improved device for measuring the tension in a rope or cable constructed of nylon and/or various other similar materials. The device includes a pair of longitudinally spaced hinged bands by which the device is removably applied to the cable to be tested and an element which engages the cable between the longitudinally spaced bands and applies a transverse force on a multiple leaf spring. Flexure of the spring along a calibrated scale indicates the degree of tension on the cable.

3,570,308
LINEARIZING CIRCUIT DEVICE FOR AN ELECTROMAGNETIC LOG
Haruo Kawamoto, Tokyo, Japan, assignor to Tokyo Keiki Seizosho Co., Ltd., Tokyo, Japan
Filed Aug. 14, 1969, Ser. No. 850,013
Claims priority, application Japan, Aug. 20, 1968, 43/71,363
Int. Cl. G01p *5/08*
U.S. Cl. 73—181 **5 Claims**

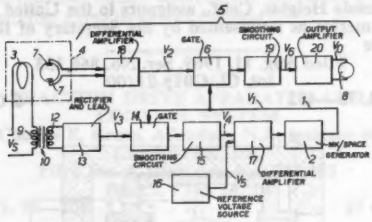


A circuit for linearizing without contact a voltage detected by a detector involved in an electromagnetic log,

which does not in many cases bear a linear ratio to the speed of a ship.

Said detected voltage is rectified by a rectifier provided with a negative feedback means consisting of a Hall element, and the rectified D.C. output is supplied to an indicator. Across the input terminals of the Hall element is connected a variable impedance means consisting of a group of diodes and potentiometers. Said variable impedance means varies the ratio which the input current to the Hall element bears to the aforesaid D.C. output, thereby adjusting the negative feedback ratio.

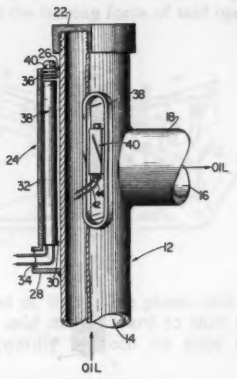
3,570,309
ELECTROMAGNETIC FLOWMETERS
David Wildon Birnstingl, Stroud, England, assignor to Mawdsley's Limited, Dursley, Gloucestershire, England
Filed Oct. 1, 1968, Ser. No. 764,156
Claims priority, application Great Britain, Oct. 3, 1967, 44,868/67
Int. Cl. G01p *5/08*
U.S. Cl. 73—194 **11 Claims**



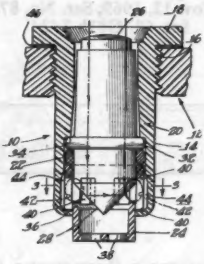
A method and an electrical circuit to compensate for variations in the energizing current in the field coils of an electromagnetic flowmeter. The circuit comprises a compensating feedback loop with an error device and a pulse generator which acts to supply a repetitive output signal with the ratio of the pulse duration to the total periodic time proportional to the ratio of two signals which are injected into the feedback loop and which are respectively proportional to a stabilized reference signal and the energizing current in the field coils. The circuit includes a measuring circuit with a modulator which acts to modulate a signal proportional to the signal detected by the electrodes in accordance with the ratio of the pulse duration to the total periodic time to provide a final output signal which is proportional to the ratio of the electrode signal to the energizing current and hence proportional to the true flow rate.

3,570,310
FLOW-INDICATING DEVICE
Wesley M. Densmore, Brownfield, Tex., assignor to Cities Service Oil Company, Tulsa, Okla.
Filed Apr. 24, 1969, Ser. No. 819,047
Int. Cl. G01p *5/00*
U.S. Cl. 73—204 **4 Claims**

An apparatus for sensing fluid flow or the lack of same in a conduit is disclosed herein. The apparatus comprises a fluid flow conduit made of a heat conducting material such as brass, an electrical heater mounted in thermal contact on the outside of the conduit, and an electrical switch responsive to changes in temperature mounted on the conduit, whereby an increase in the temperature of the conduit causes the electrical switch to trip. The switch is connected to an indicating and recording device such as a chart which shows the amount of time that it is switched to the high temperature level and vice versa. In operation the electrical heater heats the metal conduit and the fluid flowing through the conduit carries away the heat establishing a conduit temperature which is indicative of a flow through the conduit. If no flow occurs in the conduits, the conduit rapidly heats up to a higher temperature level and causes the temperature sensing switch to trip, remotely indicating to the recording device that the switch is in the no-flow position.



3,570,311
LIQUID LEVEL INDICATOR ASSEMBLY
John F. Nelson, Des Plaines, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Mar. 19, 1969, Ser. No. 808,569
Int. Cl. G01f *23/02*
U.S. Cl. 73—327 **5 Claims**

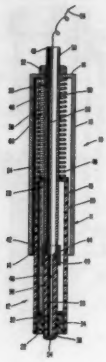


An indicator assembly for indicating liquid levels includes a member of light transmitting material having a body section, the lower portion of which is immersible within liquid and the upper portion of which is exposed so as to provide a liquid level indicating surface. A prismatic surface arrangement associated with the lower portion of the body section is adapted to receive light rays from and reflect light rays to the upper exposed level indicating surface. The light transmitting member is held within an encompassing sleeve-like device which is open at one extremity in the vicinity of the exposed level indicating surface and open at the opposite extremity in the vicinity of the prismatic surface arrangement and includes a screen member attached thereto. The sleeve-like device is mounted in the upper wall of a liquid container.

3,570,312
SKIN TEMPERATURE SENSING DEVICE
Frank Kreith, 1911 Mariposa Ave., Boulder, Colo. 80302
Filed June 21, 1968, Ser. No. 739,037
Int. Cl. G01k *1/08, 7/22;* **G01l** *1/04, 5/00;* **H01c** *1/02*
U.S. Cl. 73—345 **7 Claims**

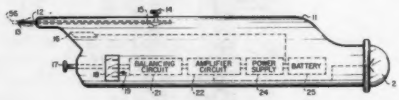
A skin temperature sensing device including a temperature sensor and a housing to manipulatively press sensor

into a preselected degree of pressure contact with the surface of the skin to measure the temperature thereof. The



housing has associated indicating means to visually indicate the degree contact pressure extant between said temperature sensing means and the skin surface.

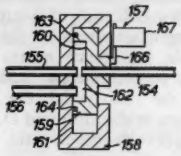
3,570,313
ELECTRIC RESISTANCE THERMOMETER
Ulrich Anton Frank, Yardley, Pa., and Carlton Stanley Tegge, Laurel Springs, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Nov. 12, 1969, Ser. No. 875,608
Int. Cl. G01k 7/24
U.S. Cl. 73—362 **7 Claims**



An electrical resistance thermometer device having a resistance sensing unit forming part of a balancing circuit with a calibrated temperature readout dial, and a balancing detector having an amplifier circuit operable at different levels of sensitivity for driving a current passing through a lamp indicator at low and high current levels and thus providing dim and bright light intensity values, so that the lamp gives a dim indication when the balance detector nears balance and a bright indication when the balance detector is at balance. A probe carrying the sensing unit is mounted for reciprocating movement in and out from the device housing.

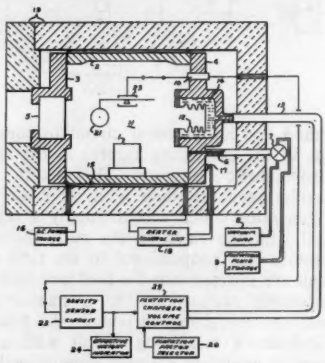
3,570,314
VALVING ARRANGEMENT FOR AUTOMATED MATERIALS ANALYSIS
Maurice Wagner, 49 Blvd. Royal, Luxembourg, Luxembourg
Filed Aug. 23, 1968, Ser. No. 754,869
Claims priority, application Luxembourg, Aug. 28, 1967, 54,388
Int. Cl. G01n 1/14
U.S. Cl. 73—422 **15 Claims**

A distributor for liquids includes at least a pair of small nonwetting tubes placed in aligned relationship. The tubes are spaced apart only a small distance so that under certain conditions the liquid will bridge the gap between effecting a total transfer of a liquid drop from one to another. A first tube can be selectively aligned with any of a series of second tubes so that samples of liquid from a single source can be routed to any one of a plurality of



analyzers. Also the samples may be withdrawn from a plurality of sources. Several arrangements for measuring doses are also disclosed.

3,570,315
FLOTATION TECHNIQUE FOR CALIBRATION OF LOW-LEVEL ACCELEROMETERS
Barry Karl Likeness, Atherton, and Doyle E. Wilcox, Hacienda Heights, Calif., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 11, 1969, Ser. No. 860,135
Int. Cl. G01p 21/00
U.S. Cl. 73—432 **6 Claims**

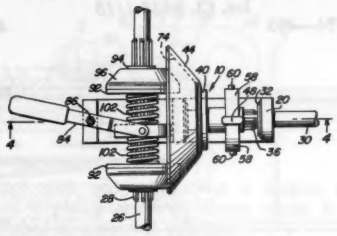


A technique for counteracting the adverse effects of the earth's gravitational field on the laboratory calibration of low-level accelerometers. The one-*g* force of the gravitational field is wholly or partly compensated as desired by immersing the proof mass of the accelerometer in a stationary dense gas which, in accordance with Archimedes principle, produces a buoyant force on the proof mass equal to the weight of the displaced gas and acting parallel and opposite to the gravitational force. The accelerometer and flotation fluid are contained in a sealed chamber having means for controlling the chamber volume and thereby the pressure and density of the gas. A servo system deriving its input from a gas density sensor in the chamber actuates the chamber volume control to automatically maintain the gas density constant at a selected value.

3,570,316
CONE CLUTCH AND REVERSIBLE DRIVE MECHANISM
Richard S. Hornack, 128 Drury Lane, Mayfield Heights, Ohio, and Gustave C. Heyman, 1120 S. Chillicothe Road, Streetsboro, Ohio 44240
Filed June 10, 1969, Ser. No. 831,919
Int. Cl. F16h 15/20; F16d 13/30
U.S. Cl. 74—191 **6 Claims**

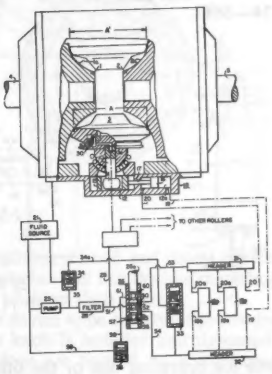
First and second shafts journaled from a support for rotation about axes disposed at generally right angles to

each other. A first friction cone is mounted on one of the shafts for rotation therewith and a pair of second pair of friction cones are mounted in axially spaced relation on the other shaft for similar shifting therealong and for rotation therewith. The second cones, when shifted, are



alternately positionable in frictional engagement with the opposite side portions of the first cone, whereby a reversing transmission is provided. In addition, one form of the invention provides means whereby the first cone is adjustably shiftable along its axis of rotation.

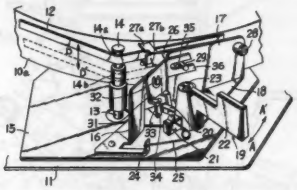
3,570,317
TRACTION DRIVE APPARATUS AND CONTROL SYSTEM
Charles E. Kraus, Allendale, N.J., assignor to Excelermatic, Inc.
Filed Jan. 8, 1969, Ser. No. 789,803
Int. Cl. F16h *15/20*
U.S. Cl. 74—200 **27 Claims**



Traction drive apparatus having driving and driven elements such as opposing toric faces and one or more rollers for transferring motion between them and a control assembly for each roller. Illustrated embodiment includes a cam follower on pivot support for roller and cam surface; a piston connected to the cam face is subject to pressure on opposite faces for enabling ratio adjustment for load equalization or speed change. Fluid control means for regulating operation of the apparatus are provided.

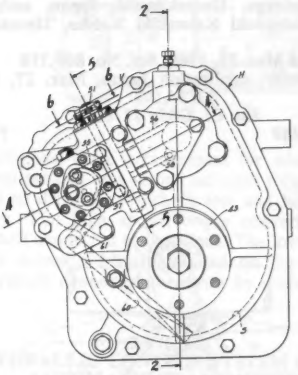
3,570,318
TURNTABLE ROTATING SPEED CHANGING DEVICE
Isamu Nakadaira, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan
Filed Oct. 16, 1969, Ser. No. 866,912
Claims priority, application Japan, Oct. 19, 1968, 43/90,834
Int. Cl. F16h *7/08*
U.S. Cl. 74—242.3 **7 Claims**

A turntable rotating speed changing device comprising an operation lever member to turn in a horizontal plane parallel to a motor board and a belt shifting lever member for the preferential change of rotation speed of a turntable driven by a belt. The latter shifting lever member is transmitted the turning force of said operation lever



member converted of its turning plane, and turned in a plane vertical to said motor board to shift the belt upwardly or downwardly between on steps of a multi-stepped pulley.

3,570,319
REVERSIBLE POWER TRANSMISSION
Bruce C. Arnold, Racine, Wis., assignor to Twin Disc Incorporated, Racine, Wis.
Filed Dec. 17, 1969, Ser. No. 885,860
Int. Cl. F16h *3/14, 1/12*
U.S. Cl. 74—361 **18 Claims**

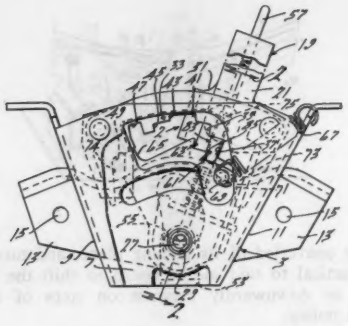


A power transmission for transmitting power from an input shaft and to an output shaft which is inclined at an angle to the input shaft, said transmission having means including a second shaft for driving the inclined output shaft in the reverse direction with equal power to that in which it is driven in the other direction. The transmission includes a clutch means for the input shaft and the second shaft and also includes meshing gears between the input, second and output shafts and which gears are in constant mesh with one another and selectively engaged by the clutches.

3,570,320
TRANSMISSION SELECTOR APPARATUS
James E. MacAfee, Troy, Steve D. Ivan, Roseville, Alojzy Then, Madison Heights, and Robert E. Paquette, Jr., Utica, Mich., assignors to Chrysler Corporation, Highland Park, Mich.
Filed Apr. 30, 1969, Ser. No. 820,425
Int. Cl. G05g *5/02*
U.S. Cl. 74—473 **11 Claims**

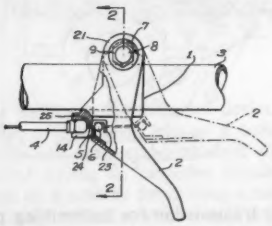
Selector apparatus for an automatic transmission including a housing, a lever pivotally mounted in the hous-

ing, upper and lower gate members having a plurality of shoulders thereon. The gate members cooperate with a



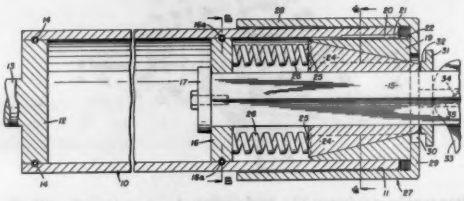
flag on said lever for releasably restraining movement of the lever from one position to another.

3,570,321
HANDLE LEVER FITTING DEVICE FOR MOTOR DRIVEN VEHICLES
Yoshiaki Tominaga, Hamakita-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Japan
Filed Mar. 21, 1969, Ser. No. 809,310
Claims priority, application Japan, Mar. 27, 1968, 43/24,197
Int. Cl. G05g *11/00*
U.S. Cl. 74—489 **7 Claims**



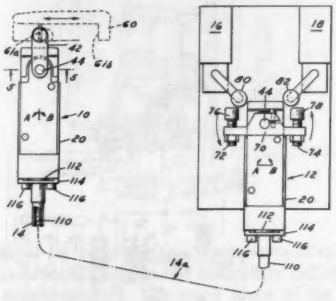
A hand lever fitting including a bifurcated ring clamp for clasping a handlebar, locking extensions on said clamp so positioned as to engage one side of the handlebar and a socket positioned on the clamp to receive the housing tube of a control cable at the opposite side of the handlebar, a hand lever having spaced arms which straddle the locking extensions of the ring clamp, a hook member secured to the lever and resting against said socket, passage means through said socket for passing a control cable whose end is to be grasped by said hook member, aligned apertures in said clamp locking extensions and lever arms, and bolt-like securing means passing through said aligned apertures for tightening the ring clamp about the handlebar while permitting rotation of the lever with respect to the clamp to move the control cable, said securing means serving as a single means to enable installation of the hand lever and the ring clamp as a unit in any desired position and at any desired angle on a handlebar of a motorcycle, snowmobile, or the like.

3,570,322
AXIALLY ADJUSTABLE AND COLLAPSIBLE STEERING COLUMN
Robert A. Krouse, 756 Temple Road, Pottstown, Pa. 19464
Filed Apr. 18, 1969, Ser. No. 817,336
Int. Cl. B62d *1/18*
U.S. Cl. 74—493 **4 Claims**



A vehicle steering column embodying relatively telescoping tube and shaft members drivingly connected for unified rotation, but moveable axially relative to one another in response to either intentional manually applied, adjusting forces, or to accidentially applied, impact forces, with means to adjust the resistance of the column to collapse in response to impact forces.

3,570,323
MOTION-TRANSMITTING APPARATUS
Donald E. Learmont, Rochester, Mich., assignor to Verstand Engineering, Inc., Madison Heights, Mich.
Filed May 1, 1969, Ser. No. 820,915
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 **4 Claims**

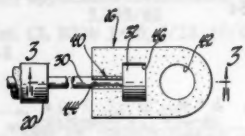


Apparatus for operating one or the other of two limit switches in response to a mechanical movement at a remote point. A master unit has a first member movable in opposite directions from a neutral position in response to the mechanical movement, the direction of movement of the member depending upon the direction of the mechanical movement. A slave unit has a second member movable in opposite directions from neutral and adapted to effect the operation of one or the other of the switches depending upon the direction in which it is moved. A single push-pull linear member or cable transmits the movement of the first member to the second member in either direction.

3,570,324
MOTION TRANSMITTING REMOTE CONTROL ASSEMBLY
Winthrop B. Conrad, Franklin, Mich., assignor to Teleflex Incorporated, North Wales, Pa.
Filed May 23, 1969, Ser. No. 827,409
Int. Cl. F16c *1/14*
U.S. Cl. 74—501 **14 Claims**

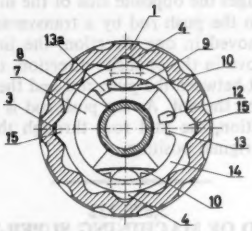
A motion transmitting remote control assembly including a flexible conduit with fittings disposed at each end

and movably supporting a wire-like core element. The core element includes an anchor means comprising a metal slug or a bent end portion which is snapped into



engagement with and retained in a snap-in receiving portion of a plastic terminal means which is adapted to be attached to a control member.

3,570,325
CONTROL KNOB WITH INTEGRAL DETENT AND STOP MECHANISMS
Heinz Ernst Johannes Kroll, Heroldsberg, and Horst Dieter Ziegler, Nuremberg, Germany, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Sept. 29, 1969, Ser. No. 861,549
Int. Cl. G05g *5/06*
U.S. Cl. 74—527 **10 Claims**

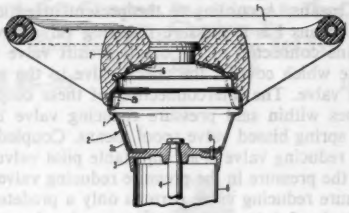


An integral instrument knob and detent device for controlling rotary switches and like devices requiring multiple discrete angular position shaft control.

A shaft for the device to be controlled protrudes through a panel, and the knob is installed and tightened thereon. The detent positions are formed by a contoured surface inside a cavity within the body of said knob. Two cylindrical rollers (or balls) are provided, and are held against the contoured surface by a leaf spring mounted on a base adapted for non-moving mounting on the panel. The ball or roller is constrained against any but radial movement. Stops are provided by a pair of rings built to engage the contoured surface, and are therefore adjustable rotationally in integral detent steps.

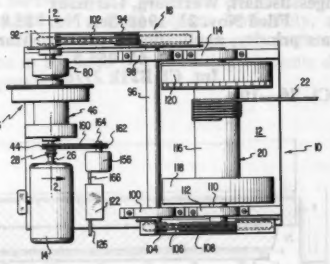
3,570,326
SAFETY STEERING DEVICE FOR MOTOR VEHICLES
Wilhelm Albrecht, Vaihingen, and Josef Eibl, Waiblingen, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Jan. 17, 1969, Ser. No. 791,894
Claims priority, application Germany, Jan. 20, 1968, P 16 80 011.6
Int. Cl. B26d *1/00*
U.S. Cl. 74—552 **34 Claims**

A safety steering for motor vehicles in which a deformation member is arranged between the steering wheel and the head piece of the steering spindle which includes only a single section plastically deformable under impact effect that passes over within the area of its largest



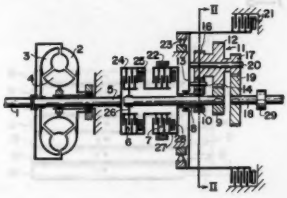
diameter into a substantially non-deformable, inherently rigid section.

3,570,327
MULTISPEED DRIVE ARRANGEMENT
James G. Morrow, Manitowoc, Wis., assignor to The Manitowoc Company, Inc., Manitowoc, Wis.
Filed Dec. 2, 1968, Ser. No. 780,480
Int. Cl. F16h *47/00*
U.S. Cl. 74—718 **9 Claims**



A multispeed drive arrangement for winches and the like comprises first and second adjacent torque converters arranged to drive the winch in low and high ranges respectively. The high speed torque converter drives an output shaft connected to the winch. The low speed torque converter drives a wheel mounted on the output shaft and selectively connected therewith by a clutch.

3,570,328
HYDRAULIC CONTROL SYSTEM OF AN AUTOMATIC TRANSMISSION
Keiji Kogaki, Toyota-shi, Japan, assignor to Toyota-Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan
Filed Apr. 4, 1969, Ser. No. 813,680
Claims priority, application Japan, May 15, 1968, 43/32,734
Int. Cl. B60k *21/00*
U.S. Cl. 74—867 **5 Claims**



A hydraulic servo mechanism for the first two speeds of a three speed transmission. Pressure on the clutches and brakes for the first two speeds is selectively applied according to the valve spool position of a one-two shift valve which has governor pressure line connected to one

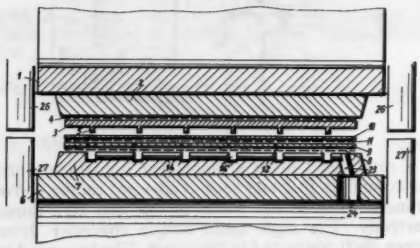
end and pressure means connected to the other end. These pressure means supply either line pressure or throttle pressure depending on a check valve regulating said pressure means. According to the present invention, this pressure means has a pressure reducing valve having an output line connected to the one-two shift valve and an input line which couples the check valve to the pressure reducing valve. The interconnection of these output and input lines within said pressure reducing valve is regulated by spring biased valve spool means. Coupled to the pressure reducing valve is an adjustable pilot valve which controls the pressure in the pressure reducing valve. Thus, the pressure reducing valve permits only a predetermined output to be fed to said one-two speed valve and the one-two speed valve is prevented from having fed to it an input greater than the predetermined input.

3,570,329

METHOD FOR MANUFACTURING A PERFORATING TOOL AND METHOD FOR PERFORATING BY MEANS OF THIS TOOL AS WELL AS A DEVICE FOR REALIZING THIS METHOD IN ROTARY PERFORATING MACHINES

Hans-Bernhard Bolza-Schunemann, Wurzburg, Germany, assignor to Schnellpressenfabrik Koenig & Bauer Aktiengesellschaft, Wurzburg, Germany

Filed Nov. 21, 1968, Ser. No. 785,844
Claims priority, application Germany, Mar. 28, 1968, P 17 61 055.8
Int. Cl. B21k *21/00*
U.S. Cl. 76—101 **10 Claims**



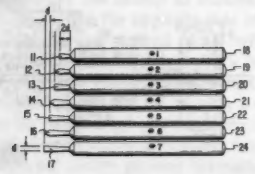
The invention relates to a method for manufacturing a perforating tool and a procedure for perforating by means of this tool as well as a device for realizing this method in rotary perforating machines, necessitating longitudinal and transverse perforation.

3,570,330

METHOD OF MACHINING INVOLVING PROGRESSIVE STEP TOOL CHANGE

John A. Cupler II, 10 Cupler Drive-La Vale, Cumberland, Md. 21504

Filed Dec. 23, 1968, Ser. No. 786,344
Int. Cl. B23b *35/00*
U.S. Cl. 77—5 **6 Claims**



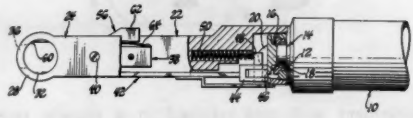
The disclosure relates to a method of drilling wherein successively longer countersinking and counterboring tools are utilized to extend the length of a bore initially formed by a tool which is relatively short in comparison to the depth of drilling operation to be performed.

3,570,331

POWER WRENCH

Donald E. Rogers, 975 Fairfax, Birmingham, Mich. 48009

Filed Apr. 12, 1968, Ser. No. 720,877
Int. Cl. B25b *21/02, 13/00*
U.S. Cl. 81—54 **6 Claims**



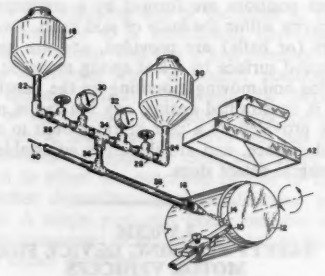
An improvement in power wrenches for rotating a polygonal member, such as a nut or a bolt. Power means, in the form of an air motor or the like, support spaced and parallel plate members extending from the power means and having aligned apertures in the outward ends thereof. The power means are operable to rotate a cam member. A pull rod, disposed between the plate members, carries a cam follower which engages the cam member. Rotation of the cam member causes straight line movement of the pull rod between the plate members. One side of the nut or bolt, received in the aligned apertures in the plate members, is engaged by the end of the push rod. A pull rod, also disposed between the plate members, engages the opposite side of the nut or bolt and is connected to the push rod by a transverse link. As the push rod is moved in one direction, the link causes the pull rod to move in the opposite direction, thus clamping the nut or bolt between the push rod and the pull rod and causing rotation thereof. As the push rod is moved in the opposite direction, the pull rod, through the link, is returned to its original position.

3,570,332

METHOD OF MACHINING SUPER-TOUGH METALS

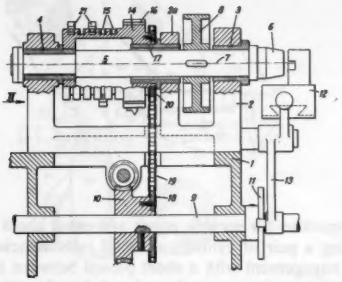
Frederick A. Beake, Hollis, N.H., assignor to Sanders Nuclear Corporation, Nashua, N.H.

Filed Dec. 18, 1967, Ser. No. 691,494
Int. Cl. B23b *1/00*
U.S. Cl. 82—1 **18 Claims**



The invention disclosed herein relates to metal working processes and more particularly to a new and novel method and apparatus for the machining of super alloys and refractory metals wherein frictional heat is removed from the work and tool utilizing the latent heat of vaporization characteristic of a volatile coolant applied to the area of contact between the work and tool.

3,570,333
AUTOMATIC LATHE
André Bechler, 4 Rue Centrale, Moutier, Berne, Switzerland
Filed Apr. 1, 1969, Ser. No. 811,773
Claims priority, application Switzerland, Apr. 10, 1968, 5,305/68
Int. Cl. B23b *3/00, 3/28, 19/02*
U.S. Cl. 82—2 5 Claims



A drum with grooves in which dogs serving to control sequential functions of the lathe are removably secured, is rotatably mounted on, and coaxially with respect to, the work spindle by two spaced bearings that surround this spindle. The drum is rotated through a transmission arrangement by the camshaft.

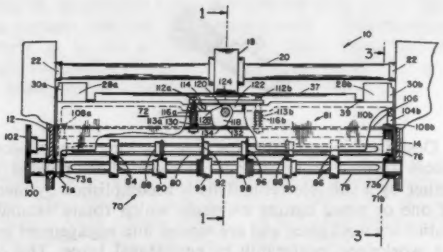
3,570,334
APPARATUS FOR SEVERING RESINOUS IMPREGNATED FIBER WORKPIECES
Henry A. Ball, Glenshaw, Pa., assignor to The Cleanola Company, Glenshaw, Pa.
Filed Aug. 8, 1969, Ser. No. 848,555
Int. Cl. B23b *3/06*
U.S. Cl. 82—59 10 Claims

Described is apparatus for severing long slender workpieces formed from strands of glass fibers bonded together by a suitable resin. This is accomplished by means of one or more cutting elements which rotate around a stationary workpiece and are moved into engagement with the workpiece, preferably by centrifugal force. The cutting elements are provided with roughened, but not serrated, flat surfaces which sever the workpiece in what can be compared to a filing action. Preferably, a low viscosity lubricant, such as water, is caused to flow over the workpiece in the area of the cutting elements during a severing operation.

3,570,335
CAM ACTUATED PAPERWORKING ASSEMBLY FOR FOLDING MACHINES

Mario James Marin, South Norwalk, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.

Filed Mar. 17, 1969, Ser. No. 807,719
Int. Cl. B23d *19/06*
U.S. Cl. 83—9 13 Claims

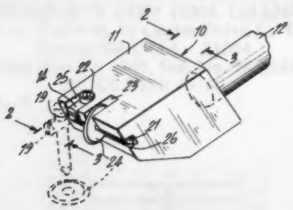


The disclosed apparatus is a folding machine for paper sheets which includes a paperworking assembly for performing operations such as perforating, scoring or slitting on each folded sheet. Sheets are fed through the apparatus and folded by means of buckle chutes. They then pass through the paperworking assembly which comprises a pair of rotatable shafts carrying selected combinations of cooperating pairs of feed and working rollers which act to perforate, score and/or slit the folded sheets. The shafts and their rolls may be moved between an operative position and an inoperative position by actuation of a cam which lifts one shaft. This simple procedure makes the paperworking assembly suited for use in heavy machines, or in those in which the paperworking assembly must be frequently made inoperative. The paperworking assembly also pivots from the machine for changing shafts or realigning or changing the feed or working rolls.

3,570,336
HOLDER FOR GLASS CUTTING WHEEL

Kenneth G. Galla, Scotch Plains, N.J., assignor to Red Devil Inc., Union, N.J.

Filed Oct. 23, 1968, Ser. No. 769,979
Int. Cl. B26d *3/08*
U.S. Cl. 83—12 1 Claim

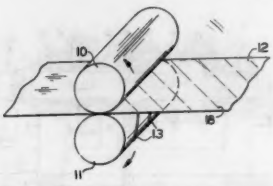


A glass cutting wheel holder in which the wheel supporting axle is swingably secured at one end to a spring loaded bar. Replacement of the cutting wheel is effected by pulling the bar outwardly of its supporting block, rotating the axle about the bar until the cutting wheel falls off the free end of the axle, replacing the wheel with a sharp wheel and rotating and releasing the axle to permit the cutting wheel to resume the operative position.

3,570,337
PAPER SCORING APPARATUS

Burton D. Morgan, Hudson, Ohio, assignor to Morgan Adhesives Company, Stow, Ohio

Filed Dec. 11, 1967, Ser. No. 689,435
Int. Cl. B26d *3/08*
U.S. Cl. 83—12 4 Claims

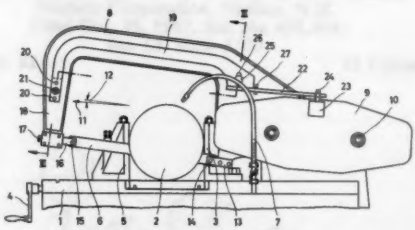


Apparatus for scoring paper and other sheet materials including a pair of cylindrical metal rolls associated for pressure engagement with a sheet passed between the roll bight. One of the rolls is smooth surfaced, but the other roll carries one or more small diameter metal wires thereon secured to the surface of the second roll whereby the material passed between the roll bight is scored and/or weakened in the area thereof contacting the wire to facilitate later tearing of the paper at the scored line.

3,570,338
METHOD AND APPARATUS FOR MEASURING BLADE TENSION OF POWER HACKSAW

Paul Stolzer, Achern, Baden, Germany, assignor to Firma Karl Stolzer, Achern, Baden, Germany

Filed Feb. 27, 1969, Ser. No. 802,873
Claims priority, application Germany, Mar. 5, 1968, P 16 52 788.1
Int. Cl. B23d *49/04*
U.S. Cl. 83—13 14 Claims



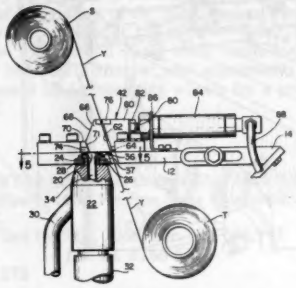
In a method and apparatus for measuring the tension of a saw blade positioned in the saw bow of a power hacksaw, particularly during operation of the hacksaw, the angle through which the front arm of the saw bow is bent by the blade tension, relative to the remainder of the bow, is measured and the measurement is transmitted to a control element for interrupting movement of the saw bow as soon as the blade tension either exceeds or drops below a normal operating tension. The measurement may be effected electrically by means of a strain bridge on the saw bow or mechanically by a bow-shaped feeler arm whose front end is rigidly secured to the front arm of the saw bow, with the remainder of the feeler arm being pivoted freely when the front arm of the saw bow is bent. The rear end of the feeler arm acts upon the control element.

3,570,339

YARN HANDLING METHOD AND APPARATUS

Henry A. Vandersip, Cranston, R.I., assignor to Leesona Corporation, Warwick, R.I.

Filed Feb. 6, 1969, Ser. No. 797,203
Int. Cl. B65h 29/24
U.S. Cl. 83—24 14 Claims



An improved aspirator-shear unit for rapidly moving strand of yarn in which an aspirator nozzle is arranged with its axis in closely proximate more or less parallel relation to the yarn path, a fixed shear blade is situated laterally between the nozzle opening and the yarn, and a movable snubnosed shear blade is projected from an inoperative position on the opposite side of the yarn path from the aspirator nozzle and fixed blade across the yarn path into shearing relating with said fixed blade and finally to a deflecting position with its leading edge generally aligned with the nozzle opening. Preferably the aspirator nozzle axis is inclined at a small angle with respect to the yarn path to reduce the clearance from the yarn path required to physically accommodate the nozzle.

ERRATUM

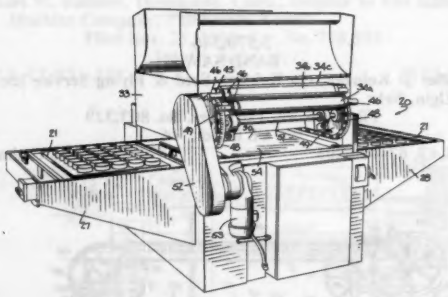
For Class 83—37 see:
Patent No. 3,570,363

3,570,340

ROLLER DIECUTTING MACHINE OR THE LIKE

Howard A. Rohdin, Waquoit, Mass., assignor to Packaging Industries, Inc., Hyannis, Mass.

Filed Feb. 13, 1968, Ser. No. 705,112
Int. Cl. B26d 1/02; B26f 1/00
U.S. Cl. 83—55 27 Claims



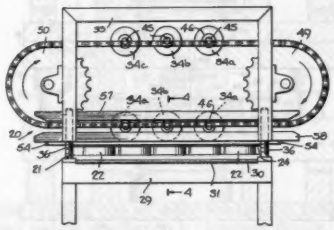
A roller diecutting machine in which the passage of a plurality of rollers causes a workpiece and a die to be forced into a cutting engagement. In accordance with one of the improvements the rollers are guided by their supporting bearings in a manner which causes the path of travel of the surface of successive rollers to be closer to the workpiece and thereby incrementally increase the cutting force applied by the rollers to the workpiece. Thus the cutting force of successive rollers can be increased by changing the diameter of the bearings which position each roller with respect to the workpiece or by providing different paths of travel for guiding the bearings of each successive roller to be incrementally closer to the workpiece. Other improvements include the directing of the rollers by means of irregular cam surfaces to move in and out with respect to the workpiece as the rollers are advanced. A further improvement includes the use of a contoured or a formed die which is adapted to transmit incrementally increasing cutting forces to a workpiece.

3,570,341

ROLLER DIECUTTING MACHINE OR THE LIKE

Joseph L. Abbott, Jr., Elnora, N.Y., assignor to Packaging Industries, Inc., Hyannis, Mass.

Filed Feb. 13, 1968, Ser. No. 705,207
Int. Cl. B26d 1/02
U.S. Cl. 83—55 27 Claims



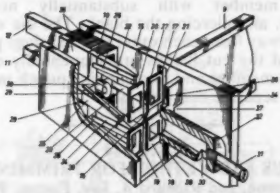
The disclosure relates to a roller diecutting machine in which rollers are used to force a workpiece against the dies. The machine includes a plurality of rollers which roll along a surface of a wear plate, and force the wear plate against the workpiece overlying the cutting edges of the dies. Each successive roller is adapted to have a greater degree of engagement with the wear plate during the movement of the roller across the wear plate. As a result, each roller applies an incrementally increasing cutting force to the workpiece.

3,570,342

APPARATUS FOR SEVERING SLIDE FRAMES OR SLIDE FRAME HALVES AND FOR THREADING THEM ON HANDLING AND CENTERING RODS

Peter Mundt, Wankweg 9, and Arnold Neuhold, Archstrasse 23, Garmisch-Partenkirchen, Germany

Filed Apr. 22, 1968, Ser. No. 723,069
Claims priority, application Germany, Apr. 27, 1967, G49946
Int. Cl. B26d 7/06
U.S. Cl. 83—93 6 Claims



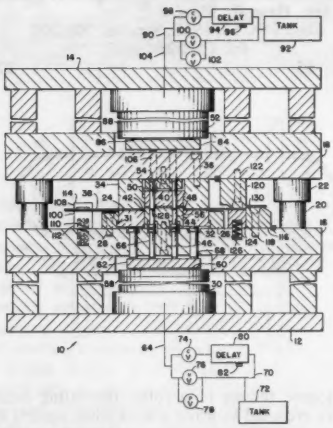
In an automatic operation, slide frames or slide frame halves discharged from an injection molding machine are severed and threaded on handling and centering rods, by which the frames or frame halves can be fed in an ordered arrangement to a welding or mounting machine. A receiving hopper is disposed under the point where the frames or

frame halves are ejected from the injection molding machine. A guideway leads from the hopper to a severing device, which is disposed on a lower level and into which the handling and centering rods can be inserted.

3,570,343
STRUCTURE FOR FINE BLANKING

Ervin E. Wolnosky, Troy, and Waldemar Holz, Redford Township, Wayne County, Mich., assignors to Di-Dro Systems Inc., Dearborn, Mich.

Filed Oct. 18, 1968, Ser. No. 768,698
Int. Cl. B26d *7/02, 7/06*
U.S. Cl. 83—124 **10 Claims**



The structure for fine blanking includes opposed die members one of which is supported by a hydraulic cushion, a die pad supported by a separate hydraulic cushion in an opening in the other die member and a blanking punch opposed to the die pad and having substantially the same dimension as the opening in the one die member positioned within the other die member. A gripping ring is provided on one of the die members at the periphery of a blank to be cut thereby. Piercing punches are provided extending through the die pad and operate in conjunction with piercing pads supported on the hydraulic cushion supporting the one die member. Separate hydraulic delay structure is provided in conjunction with both of the hydraulic cushions.

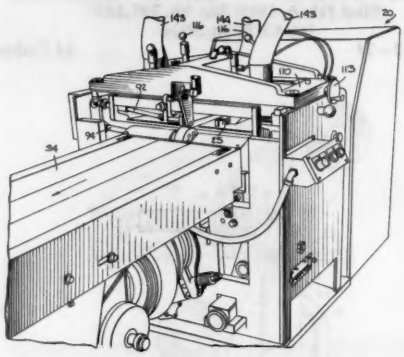
The fine-blanking method disclosed includes moving the die members toward each other to clamp a metal workpiece tightly about the periphery of a blank to be cut therefrom whereby the gripping ring forces the metal of the workpiece inwardly toward the periphery of the blank to be cut therefrom, cutting the blank between the blanking punch and other die member with substantially no clearance therebetween, and piercing the blank. The die members are then moved away from each other and the slugs pierced from the blank and the cut blanks are sequentially ejected from the upper die member and the blanking punch in accordance with selected separate delay times.

3,570,344
APPARATUS AND METHOD FOR TRIMMING BOOKS

Robert A. Bryson, and Richard A. Lee, Easton, Pa., assignors to Harris-Intertype Corporation

Filed June 18, 1968, Ser. No. 737,971
Int. Cl. B65h *35/06*
U.S. Cl. 83—155 **21 Claims**

The disclosure relates to an apparatus and a method for trimming books or magazines by placing them on a movable support having a resilient supporting surface. The support with a book in place thereon is elevated adjacent a plurality of fixed trimming knives in order that the knives can trim the book as it is pressed against the knives. The support is then lowered and the trimmed book is removed. As a result the

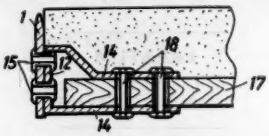


vertically reciprocating support and the fixed knives enable books to be trimmed at a single station within the apparatus.

3,570,345
PUNCHING DIE

Ernst Spengler, Heusenstamm near Offenbach, Germany, assignor to Roeder & Spengler OHG, Bergen-Enkheim Hessen, Germany

Filed Jan. 30, 1969, Ser. No. 796,646
Claims priority, application Germany, Feb. 3, 1968, July 17, 1968, R36850; P 17 60 899.0
Int. Cl. B26d *7/06, 1/06*
U.S. Cl. 83—128 **19 Claims**

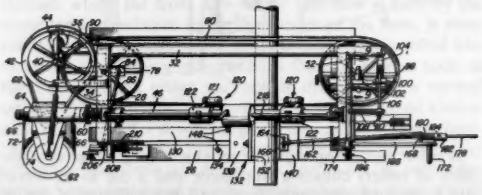


A punching die wherein a strip steel cutting knife having the desired endless or closed configuration of patterns to be cut or punched from sheet material, is attached to a plate which is surrounded by the knife as by a frame. In one embodiment a spacing is provided between the plate facing wall of the knife and the plate all around the plate. In another embodiment the plate facing wall of the knife is provided with a groove to receive the edge of the plate.

3,570,346
BAND SAW

Walter J. Koinzan, c/o Koinzan Seed & Flying Service Inc., Elgin, Nebr.

Filed Feb. 28, 1969, Ser. No. 803,329
Int. Cl. B26d *1/46*
U.S. Cl. 83—201.05 **18 Claims**



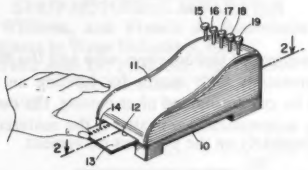
A metal cutting band saw including a vertically pivoting endless blade tensioned and guided for selective raising and

lowering relative to a workpiece clamping vise. A single control lever is provided for effecting the vertical movement of the blade or saw band with the frame mounting the blade selectively closing and opening a drive motor switch. The workpiece clamping vise is adjustable so as to clamp workpieces of different sizes therein and, when adjusted, automatically opens and closes in response to a vertical movement of the frame mounted saw blade. The saw blade guides are adjustably mounted and include bearing means whereby a true vertical orientation of the blade and an elimination of any tendency for the blade to roll is achievable. Guide means is provided on the free end of the blade frame for ensuring a true vertical movement thereof and adjustments cooperate with the opposed blade mounting wheels for a proper alignment thereof.

3,570,347
PORTABLE CARD PUNCHING DEVICE

Anton Josef Blaser, 1639 Posilipo Lane Montecito, Santa Barbara, Calif.

Filed Oct. 11, 1968, Ser. No. 766,911
Int. Cl. B26d *5/22*
U.S. Cl. 83—278 **7 Claims**

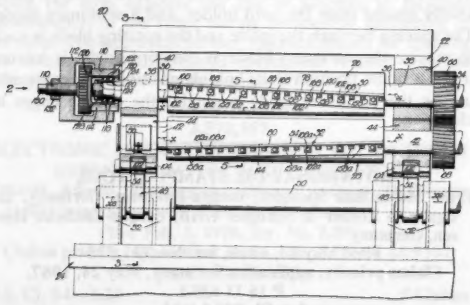


A portable card punching device for use by students in recording their answers to tests and in similar situations so that the resulting punched card can be processed by computers comprises a frame structure defining a card receiving channel. A plurality of pushrods are provided in a row running across and above the channel such that depression of any one rod will punch a hole in a card received in the channel in a certain position along a row of points on the card corresponding to the position of the pushrod. A mechanical indexing means is provided in the frame structure and interconnected with the pushrods such that upon depression of any one rod, the card will be moved forward an incremental distance in the channel and properly indexed to a next successive row so that only one punch will appear in any one row on the card. The entire device is mechanically operated requiring no electrical connections and is sufficiently portable as to be easily carried around by a person and used as desired.

3,570,348
ROTARY SHEAR

Karl W. Hallden, Thomaston, Conn., assignor to The Hallden Machine Company, Thomaston, Conn.

Filed Nov. 25, 1968, Ser. No. 778,593
Int. Cl. B23d *25/12*
U.S. Cl. 83—342 **10 Claims**

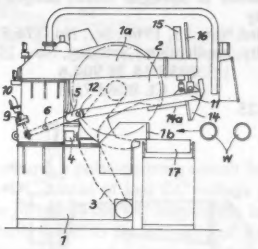


For cutting coordination of shear blades which are nonadjustably locked directly to the companion shear drums of a rotary shear, the opposite end bearings of one of the shear drums are mounted in the shear frame for individual adjustability in two transverse directions one of which is to and from the axis of the other shear drum.

3,570,349
SAW FOR DIVIDING WORKPIECES

Otto Behrendt, Dusseldorf-Eller, and Helmut Robra, Mulheim(Ruhr), Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed Jan. 21, 1969, Ser. No. 792,603
Claims priority, application Germany, Jan. 26, 1968, P 16 52 782.5
Int. Cl. B26d *7/02*
U.S. Cl. 83—380 **10 Claims**

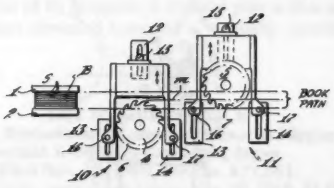


A saw for dividing one or more workpieces lying side-by-side parallel to one another in a clamping device, in which the saw is moved while the clamping device is stationary, and the workpieces are clamped in the clamping device in a vertical direction between an upper jaw and a lower jaw, and at the same time are pressed in a horizontal direction against a stationary abutment arranged on the side of the clamping device remote from the saw, so that the clamping device is freely accessible from the other side and also transversely to the direction of motion of the saw. The saw, with respect to its speed of advance, is positively guided, and the upper jaw, for the clamping of the workpieces in a vertical direction, can swing about a pivot, and, for the pressing of the workpieces against the stationary abutment, is provided with a further abutment displaceable relatively to the stationary abutment, so that a so-called drawing of the saw into the material is prevented, and the upper jaw, upon coming into contact with the workpieces, is moved exactly perpendicularly to the bearing plane of the workpieces.

3,570,350
CUTTER FOR BOOK BINDING

Robert E. Fogg, Lynn, Mass., assignor to Comstock & Wescott, Inc., Cambridge, Mass.

Filed Apr. 16, 1969, Ser. No. 816,487
Int. Cl. B26d *7/06*
U.S. Cl. 83—404 **3 Claims**



In apparatus of the type in which collated book signatures are held by clamps for travel along a path, the signature folds are trimmed off by apparatus comprising a first rotary cutter on one side of the path disposed to cut laterally part way into

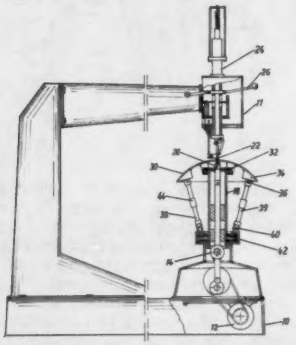
the width of one side of the book backbone as it moves past the cutter, and a second rotary cutter on the opposite side of and farther along said path disposed to cut at least to the same width through the other remaining side of the backbone. The rotary cutters are coplanar and lie in a plane parallel to the path of travel. The first cut is substantially halfway through the book, during which cut the remaining uncut side of the book backbone acts as back up means for the first rotary cutter, thereby obviating the need for customary additional back up means. To lesser extent the first cut side of the backbone extending below the clamps acts as back up means for the second cutter.

3,570,351

SAW FOR MACHINING A WORKPIECE HAVING A CURVED SURFACE

Ernst Maximilian Spengler, Bergen-Enkheim, Germany, assignor to Roeder & Spengler OHB, Bergen-Enkheim Hessen, Germany

Filed Nov. 18, 1968, Ser. No. 776,516
Claims priority, application Germany, Nov. 25, 1967, R-47 443;P16 28 904.6
Int. Cl. B26d *7/06*
U.S. Cl. 83—425 **4 Claims**



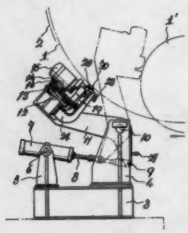
A saw with a curved workpiece support which is rotatably, and preferably also tiltably, attached to the saw whereby workpieces having a curved surface may be machined in such a manner that the saw blade extends perpendicularly relative to the curved surface of the workpiece at all times of the machining operation.

3,570,352

APPARATUS FOR AUTOMATICALLY CUTTING AND REMOVING COIL BAND

Shichiro Morita, Sasebo, Japan, assignor to Sasebo Heavy Industries Co., Ltd., Tokyo, Japan

Filed Oct. 23, 1968, Ser. No. 769,832
Claims priority, application Japan, Apr. 1, 1968, No 43-21034
Int. Cl. B23d *45/02*
U.S. Cl. 83—467 **3 Claims**



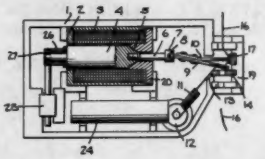
A saw cutter which cuts a coil band. The coil stops at a predetermined position. Here the coil is cut by a saw. The cut piece is placed on a belt and guided by a magnet. It travels along the belt to a pulley where it is bent into a circular shape. It is received by a receiving base operated by a cylinder and thereafter dropped for treatment.

3,570,353

ELECTROMAGNETIC CUTTING DEVICE WITH CHANGE-OVER SWITCH

Kurt Hess, Canton, Luzern, Switzerland, assignor to Heberlein & Co. AG, Wattwil, Switzerland

Filed May 6, 1969, Ser. No. 822,249
Claims priority, application Switzerland, May 13, 1968, 7071/68
Int. Cl. B26d *1/09*
U.S. Cl. 83—576 **5 Claims**



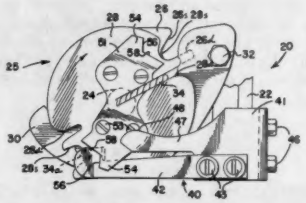
Cutting device for thread, rope, wire and the like actuated electromagnetically with means for holding an end of the material to be cut during and after cutting, the cutting movement being automatically repeated if the material is not cut through completely on the previous movement.

3,570,354

GUIDED STATIONARY KNIFE FOR DOUBLE SHEAR KNIFE

Homer N. Grillot, Naperville, and Stuart D. Pool, Wheaton, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Nov. 22, 1968, Ser. No. 778,158
Int. Cl. B23d *31/00*
U.S. Cl. 83—592 **4 Claims**



A twine cutting mechanism for balers comprising a cord holder, a rotating blade mounted on the cord holder, a guide axially spaced from the cord holder, and a stationary blade. The spacing between the guide and the rotating blade is such to receive the stationary blade as the cord holder is rotated from its home position to its holding position. The guide acting on the stationary blade maintains the cutting edges in alignment.

3,570,355

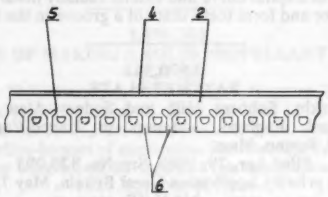
ROTATIONAL DIE STAMPING TOOL

Ernst Maximilian Spengler, Bergen-Enkheim, Germany, assignor to Roeder & Spengler OHB, Bergen-Enkheim Hessen, Germany

Filed May 23, 1968, Ser. No. 731,535
Claims priority, application Germany, May 24, 1967, P 16 11 635.1
Int. Cl. B26d *1/12*
U.S. Cl. 83—663 **5 Claims**

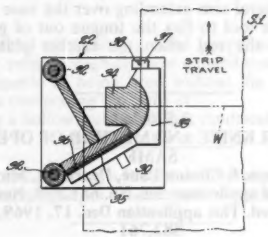
The present die stamping tool has a baseplate shaped to

conform to the surface of a rotational body, such as a cylinder. Working blades are held in grooves or slots of the baseplate by means of serrated back edges which may be provided with gripping teeth. The rotational die stamping



tool is made by shaping or bending the baseplate, cutting said grooves or slots, serrating the back edges of said working blades and anchoring said serrated back edges in the grooves or slots.

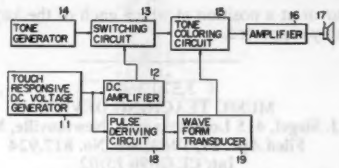
3,570,356
STRIP NOTCHING APPARATUS
Arthur L. Williams, and Francis A. Bodenheim, Warren, Ohio, assignors to Wean Industries, Inc.
Filed Apr. 29, 1968, Ser. No. 724,904
Int. Cl. B26d *1/08*
U.S. Cl. 83—693 **1 Claim**



Apparatus for use in a processing line through which strip travels longitudinally, such apparatus functioning to join the trailing end of a first strip portion to the leading end of a second strip portion along a transverse line of juncture to form a continuous strip length. The apparatus includes a flashwelder for joining the first and second strip portions, a trimmer for removing the weld flash from opposite faces of the strip at the line of juncture, a notcher for removing weld flash at the line of juncture at opposite side edges of the strip and including means for removing the abrupt shoulder formed at the line of juncture at at least one side edge of the strip when a relatively narrow first strip portion is welded to a relatively wide second strip portion. The apparatus also includes punch means selectively operable with the notcher to pierce the strip adjacent the line of juncture to facilitate identification of the latter during subsequent processing of the strip. The apparatus further includes means for locating the notcher in predetermined operational relation with the side edge aforesaid of the first strip portion.

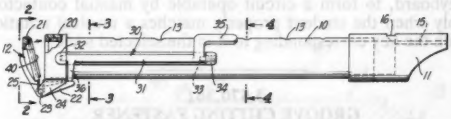
3,570,357
ELECTRONIC MUSICAL INSTRUMENT WITH A TOUCH REPONSIVE DC VOLTAGE GENERATOR
Takeshi Adachi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki, Shizuoka-ken, Japan
Filed Feb. 5, 1970, Ser. No. 8,892
Claims priority, application Japan, Feb. 8, 1969, 44/9107
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.26 **5 Claims**

An electronic musical instrument capable of controlling a tone color of a musical tone at the time of rise of the tone as well as the intensity of the tone in proportion to a key-depressing force so as to produce, in particular, a musical sound simulating to that produced by a wind instrument, whereby the expressionability of music can be improved. The said electronic musical instrument comprising a touch responsive DC voltage generator circuit for deriving a DC output at a level in response to a key-depressing force, a tone generator for generating a tone, signal, means for switching said tone signal by the output signal derived from said DC voltage generator circuit, a tone-coloring circuit including a filter for giving a musical tone color to the tone signal from



said switching means, a pulse-deriving circuit for producing a pulse from the DC output of said DC voltage generator circuit at the time of rise of the DC output, the intensity of the pulse being proportional to the intensity of the DC output, and a wave from transducer for converting the pulse from the pulse-deriving circuit into a control signal having a predetermined rising and decaying wave form, said filter circuit having variable impedance means whose impedance is varied by and in response to the control signal from the wave form transducer and as a result the frequency characteristic of the filter circuit being carried in response to the control signal.

3,570,358
MUSICAL PIPE
John C. Guinness, Los Angeles, Calif., assignor to Midas Production, Inc., Los Angeles, Calif.
Filed Mar. 13, 1969, Ser. No. 807,036
Int. Cl. G10d *7/02, 9/00*
U.S. Cl. 84—380 **5 Claims**

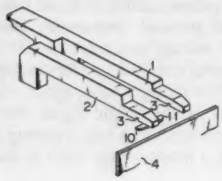


A wind instrument in the form of a musical pipe with means for closing and opening the end to permit operation throughout the full chromatic scale in both the upper and the lower octaves of its compass. A musical pipe with a substantially constant diameter bore and a manually operable end cap.

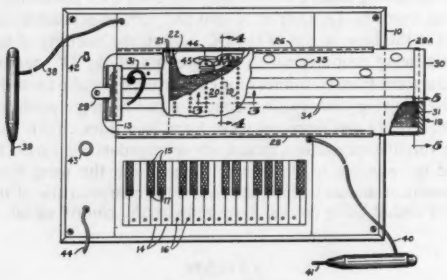
3,570,359
KEY MEMBER DEVICE
Junji Ohno, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan
Filed Nov. 18, 1969, Ser. No. 877,661
Claims priority, application Japan, Nov. 20, 1968, 43 100741
Int. Cl. G10c *3/12*
U.S. Cl. 84—423 **5 Claims**

A key member device is provided with a plurality of white key members and black key members regularly arranged by a chromatic scale. Each of the black key members has protru-

sions sidewise extending therefrom in a manner to contact the upper or lower surface of the adjacent white key members near or at a position at which each of the key members is rotatably supported.

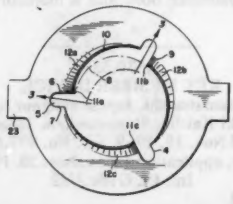


3,570,360
MUSIC TEACHING DEVICE
Harold J. Siegel, 415 Lowell Avenue, Newtonville, Mass.
Filed Apr. 21, 1969, Ser. No. 817,924
Int. Cl. G09b *15/02*
U.S. Cl. 84—477 **11 Claims**



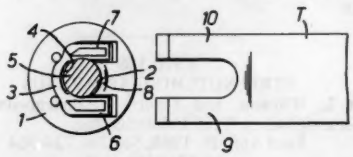
A music teaching device has a simulated keyboard, and a slide for supporting masks or cards printed with musical staffs and notations. The masks are of various lengths corresponding to different musical scales, and serve to position the slide to engage a set of selector contacts with any of various columns of note contacts. Each column is connected with appropriate ones of a set of contacts associated with the keyboard, to form a circuit operable by manual contactors only when the student properly matches a musical notation with the key corresponding to it in the selected scale.

3,570,361
GROOVE CUTTING FASTENER
George A. Tinnerman, 17864 Beach Road, Lakewood, Ohio
Original application Aug. 1, 1966, Ser. No. 569,478, now Patent No. 3,456,705, dated July 22, 1969. Divided and this application Apr. 17, 1969, Ser. No. 816,956
Int. Cl. F16b *37/02*
U.S. Cl. 85—32 **2 Claims**



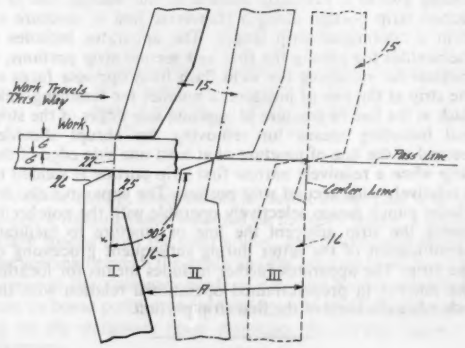
A sheet metal nut element for cutting a groove or thread channel on a smooth shank is formed with a plurality of teeth on the peripheral edge of an aperture which receives a shank. The periphery of the aperture is interrupted by breaks or discontinuities and each tooth is formed by an angle at the intersection of the peripheral edge and the edge of a discontinuity. The edge between the discontinuities is deflected axially to lie in a spiral curve and extend radially inwardly of the spiral curve and form teeth that cut a groove in the shank.

3,570,362
RATCHET PLATE
Leslie Parkin, Bobbers Mill, and Sydney Alan Andrews, Stapleford, England, assignors to United-Carr Incorporated, Boston, Mass.
Filed Apr. 29, 1969, Ser. No. 820,093
Claims priority, application Great Britain, May 7, 1968, 21546/68
Int. Cl. F16b *21/20*
U.S. Cl. 85—36 **3 Claims**



A ratchet plate having a resilient tongue for gripping a rod inserted through an aperture in the plate, the tongue having at least one integral arm extending over the base so as to be engageable by a tool to flex the tongue out of gripping engagement with the rod when the ratchet plate is to be removed.

3,570,363
CROP SHEAR KNIFE AND METHOD OF OPERATING SAME
Wilbur C. Thomas, 8 Clinton Lane, Dearborn, Mich.
Continuation of application Ser. No. 681,850, Nov. 9, 1967, now abandoned. This application Dec. 17, 1969, Ser. No. 882,761
Int. Cl. B23d *25/12*
U.S. Cl. 83—37 **8 Claims**



The forward-facing shearing knife of a pair of crop shear knives mounted on adjacent rotatable heads has its shearing face so inclined that when reaching the initial position at which penetration of the work commences, it is approximately perpendicular to the plane of the work, and during the shearing operation it extends angularly away from and rearwardly at an increasing angle with respect to the plane and direction of movement of the stock. The work-engaging end surface of the knife is inclined inwardly and rearwardly with respect to a plane tangent to the shearing edge. The inclina-

tion of these two surfaces is such that during engagement with the work the nonradial force vectors on the knife and drum are substantially eliminated, thereby eliminating damaging stresses and improving the shearing of heavy stock such as hot rolled steel plate.

3,570,364

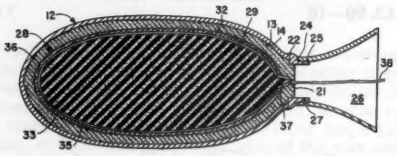
METHOD OF MAKING A SOLID PROPELLANT ROCKET MOTOR

Joseph G. Thibodaux, Jr., 1406 Antigua, Houston, Tex.

Original application Nov. 8, 1961, Ser. No. 151,110, now Patent No. 3,421,325, dated Jan. 14, 1969, which is a continuation-in-part of application Ser. No. 8,200, Feb. 11, 1960, now abandoned. Divided and this application June 22, 1965, Ser. No. 467,820

Int. Cl. F42b *17/00, 9/14;* **C06b** *21/02*

U.S. Cl. 86—1 **5 Claims**



1. A method of making a solid propellant rocket motor having reliable high-altitude capabilities, long shelf life and capable of being fired without the use of a nozzle closure comprising the steps of:

providing a hollow, substantially cylindrical rocket motor casing center section;

positioning and securing a first hemispheroidal casing section along abutting edges of said center section at one end thereof;

positioning this partially assembled motor casing with its longitudinal axis vertically disposed with said hemispheroidal section in a lowermost position;

inserting a combustible mandrel having electroresponsive igniter means thereon in electrical contact with elongated lead wires extending therefrom within the partially assembled casing;

positioning and securing a second hemispheroidal casing along abutting edges of said center section about said mandrel, said second hemispheroidal casing being provided with a central aperture therein and having an annular overlying plate secured about the aperture, said annular plate including an integral rearwardly directed externally threaded annular projection;

suspending said mandrel by said lead wires to space said mandrel from the interior casing wall and provide a propellant receiving cavity therein;

pouring a liquefied curable propellant through said annular projection to completely fill said cavity about said mandrel;

maintaining the propellant filled casing at a predetermined temperature for a predetermined length of time to cure said propellant to thereby seal said mandrel therein and to seal said central aperture;

trimming away any excess propellant extending beyond said annular projection after curing;

and threadingly securing an internally threaded nozzle to said externally threaded projection with said elongated lead wires extending therethrough.

3,570,365

BALLISTIC DEVICE COMPRISING A PROJECTILE AND ITS LAUNCHER

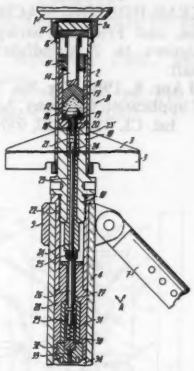
Robert Bornand, Meyrin, Switzerland, assignor to Transurvey Holding Company Inc., Societad Anonima, Panama

Filed Apr. 11, 1969, Ser. No. 815,340

Claims priority, application Switzerland, Apr. 11, 1968, 5704/68

Int. Cl. F41f *1/06*

U.S. Cl. 89—1 **9 Claims**



A ballistic device comprises a projectile and a launcher therefor, the projectile having a tube at its rear end in which is disposed a combustion chamber containing a propulsive charge. The charge is compressed on its forward side by a piston that bears against a forwardly extending rod which at its forward end transmits the propulsive force to the projectile. The charge is electrically fired, and the electrical connections are housed in part in the combustion chamber.

3,570,366

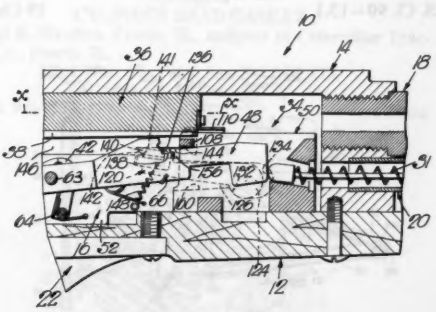
DEVICE FOR DISABLING FIREARM ACTION ON CARTRIDGE FEED INTERRUPTION THERETO

Ewald F. Nickel, New Haven, Conn., assignor to The Marlin Firearms Company, New Haven, Conn.

Filed July 1, 1969, Ser. No. 838,289

Int. Cl. F41d *9/00;* **F41c** *13/00*

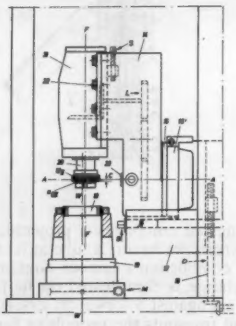
U.S. Cl. 89—138 **16 Claims**



The disclosure deals with an action disabling device in a firearm having among its conventional components a spring-closed breech bolt, a tube-type magazine, and a pivoted cartridge lifter. The disabling device is in the form of a spring-loaded latch part having with a fixed member of the action a floating pivot connection over a limited range, with the latch part being in its normal position at one end of its floating range in follower relation with the cartridge lifter such that

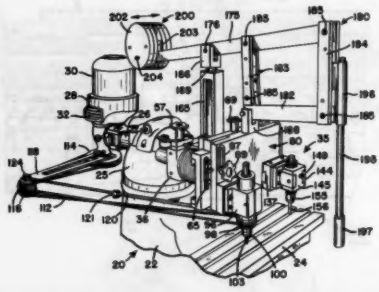
on overtravel of the latter in lift direction for lack of a cartridge thereon, the part is turned into the closing path of the breech bolt and is on partial closure of the latter shifted by the same to the other end of its floating range at which it not only locks the breech bolt against complete closure but is itself also out of follower relation with the lifter and, hence, free for subsequent spring-retraction from locking relation with the breech bolt on mere manual backup of the latter from its partial closure.

3,570,367
GEAR-HOBBING MACHINE
Johannes Looman, and Friedrich Striepe, Friedrichshafen, Germany, assignors to Zahnradfabrik Friedrichshafen, Akliengesellschaft
Filed Apr. 8, 1968, Ser. No. 719,394
Claims priority, application Germany, Apr. 8, 1967, Z12788
Int. Cl. B23f *5/20, 9/04*
U.S. Cl. 90—4 **4 Claims**



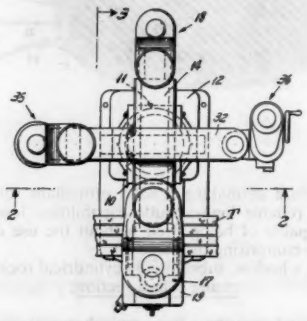
A gear-hobbing machine having a gear cutter supported for adjustments along its own axis, about an axis perpendicular to its own axis and along the second mentioned axis to obtain a desired cutting clearance angle between the gear cutter and a gear blank.

3,570,368
DUPLICATING APPARATUS
Edward C. Clark, 1015 Springfield St., Dayton, Ohio
Filed Aug. 29, 1969, Ser. No. 854,059
Int. Cl. B23c *1/16*
U.S. Cl. 90—13.1 **19 Claims**



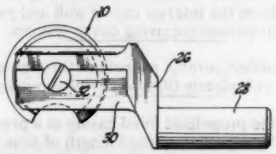
A vertical turret milling machine having a horizontal support arbor is provided with a three dimensional duplicating device including a bracket which mounts on one end of the arbor and supports antifriction cylindrical bearings on opposite sides of the arbor for receiving parallel spaced cylindrical guide rods. A first vertical plate member rigidly connects the forward ends of the guide rods and supports an adjacent second vertical plate member for lateral movement. A third vertical platelike head member is supported by the adjacent second plate member for vertical movement and carries a rotatable spindle and a stylus positioned in horizontally spaced relation above the table of the machine. An overhead beam is pivotally supported by the mounting bracket and is connected to the head member by a linkage system positioned in a vertical plane and provided with a handle for controlling the lateral, to-and-fro and vertical movements of the head member. A weight is adjustably mounted on the beam to counterbalance the head member, and the spindle is driven by a belt connected to the milling machine motor mounted on the opposite end of the arbor.

3,570,369
TOOL-CARRYING TURRET
William M Hoddinott, Milford, and Leonard Nelson, Trumbull, Conn., assignors to said Hoddinott assor to Textron Inc., Providence, R.I.
Filed June 6, 1969, Ser. No. 831,099
Int. Cl. B23c *1/12*
U.S. Cl. 90—16 **7 Claims**



A simple, rugged turret for milling machines embodying slidable cross arms or rams carrying four different tools, preferably power-operated tools which can, by adjusting the position of the cross arms, be selectively employed on a workpiece carried by a worktable of the milling machine, all without altering the setup of the workpiece.

3,570,370
LATHE TRACER STYLUS
William Ristau, Detroit, Mich., assignor to Speedring Corporation, Warren, Mich.
Filed May 19, 1969, Ser. No. 825,798
Int. Cl. B23q *35/26*
U.S. Cl. 90—62 **2 Claims**

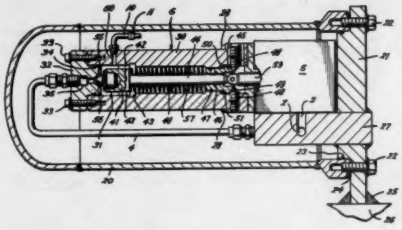


A stylus for a lathe tracer having a relatively flat body member with a template-engaging edge portion of varying contour so that the relationship between a lathe-cutting bit controlled by the stylus and a workpiece can be changed by engaging the template with a different point on the edge portion.

3,570,371
HYDRAULIC ACTUATOR

David P. Herd, Houston, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex.

Filed Nov. 7, 1968, Ser. No. 774,038
Int. Cl. F15b *11/16*
U.S. Cl. 91—412 18 Claims

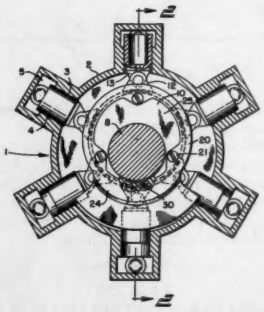


A hydraulic actuator and related system for activating a control device or the like. The actuator comprises a case with a chamber therein and a shaft longitudinally disposed in the chamber for limited longitudinal movement. An inlet port provides communication between the chamber and a pressure source. A valve seat is provided around the port and a valve member attached to one end of the shaft is biased toward seating contact with the seat. The opposite end of the shaft projects outwardly of the chamber through annular sealing means to contact a control device for activation thereof. The cross-sectional area of the shaft at the annular sealing means is greater than the pressure area of the valve member subjected to the pressure in the port when the valve member is seated. A relief port through the case and conduit means are provided to connect the chamber to a low-pressure atmosphere when the valve member is seated and to a higher pressure atmosphere when the valve member is unseated to substantially prevent fluid pressure loss from the chamber. A restrictive orifice is provided in the conduit to substantially reduce pressure loss from the chamber on initial unseating of the valve member.

3,570,372
RADIAL PUMP WITH HYDROSTATIC LOAD BALANCE

John F. Campbell, Beech Knoll, Timberidge Trail, Gates Mills, Ohio

Filed Nov. 29, 1968, Ser. No. 779,851
Int. Cl. F04b *27/08*; F01b *31/10*
U.S. Cl. 91—496 9 Claims

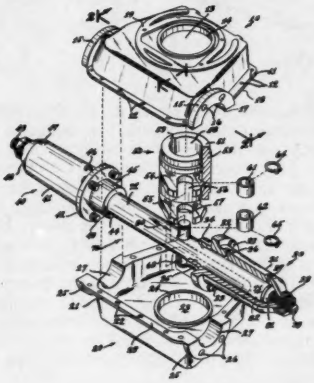


A radial pump having radial plungers which are reciprocated radially inwardly and outwardly by an eccentric on the input or drive shaft. Fluid pressure from the pumping chambers is fed to associated recesses at the face of the eccentric in radial alignment with each plunger to provide a hydrostatic load balance on each plunger at the eccentric face, whereby transfer of force from the eccentric to the plungers occurs primarily through the static fluid within the recesses. Fluid pressure is also fed from the pumping chambers to additional recesses in the journal bearings for the input shaft radially opposite the plungers to provide a hydrostatic load balance on the input shaft.

3,570,373
VALVE OPERATOR AND METHOD OF MAKING THE SAME

Willem E. Tupker, Sepulveda, Calif., assignor to Bell Aerospace Corporation

Filed Apr. 25, 1969, Ser. No. 819,231
Int. Cl. F01b *9/00*
U.S. Cl. 92—138 8 Claims

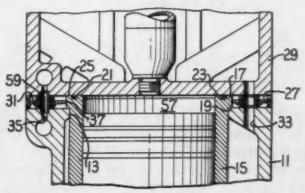


The valve operator disclosed includes a housing constructed of substantially identical housing halves joined together at mating surfaces. Cylinder means is secured to the housing and bridges the housing halves.

3,570,374
CYLINDER HEAD GASKET

Michael K. Stratton, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 19, 1969, Ser. No. 808,474
Int. Cl. F16j *11/04*
U.S. Cl. 92—171 6 Claims



A gasket construction comprising a carrier having a sponge rubber member about the periphery thereof and steel ferrules and rubber grommets situated at various positions in the carrier so as to connect oil and water passages from the cylinder head to the block.

3,570,375

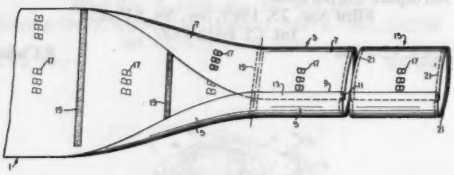
METHODS OF MANUFACTURING PLASTIC BAGS

Russell J. Williams, Sun City, Ariz., and Milton J. Heimos, Affton, Mo., assignors to Bemis Company, Inc., Minneapolis, Minn.

Original application Nov. 25, 1966, Ser. No. 597,169, now Patent No. 3,394,871, dated July 30, 1968, which is a continuation of application Ser. No. 340,995, Jan. 29, 1964, now abandoned. Divided and this application May 14, 1968, Ser. No. 729,122

Int. Cl. B31b *49/04*

U.S. Cl. 93—35 12 Claims



A method of manufacturing plastic bags with a plastic tape folded around one end of the bag and heat-sealed to the bag walls with heat-seal-inhibiting material precluding sealing together of the walls where the tape is sealed to the walls. A method of manufacturing plastic bags with a heat-sealed pinch-type closure with heat-seal-inhibiting material precluding sealing together of the walls where the closure is sealed. A method of manufacturing plastic bags with an interrupted or vented heat-sealed longitudinal seam with heat-seal-inhibiting material in a pattern for forming the interrupted or vented longitudinal seam. A method of manufacturing plastic bags with a valve sleeve sealed in a heat-sealed longitudinal seam with heat-seal-inhibiting material on the inside of the sleeve to preclude sealing together of the walls of the sleeve.

3,570,376

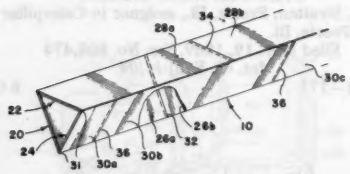
BREAKAWAY POST

Dolphin D. Overton, III; Rudloph B. Rustin, Jr., Mullins, and William E. Hughes, Marion, S.C., assignors to Overton Container Corporation, Mullins, S.C.

Filed Jan. 16, 1968, Ser. No. 698,164

Int. Cl. E04h *12/04*

U.S. Cl. 94—1.5 12 Claims



A breakaway post is provided for supporting highway signs or the like. The post is made from independent flat rectangular segments arranged end to end to form three panels, with the segments secured together along their side edges to form a hollow post having a triangular cross section. A plurality of breakaway lines to start the breakup of the post upon impact by an automobile or the like are provided by the ends of the segments. The ends of the segments of any one panel are staggered longitudinally with respect to the ends of the segments of the other panels except at the top and bottom of the post. Staggering of the ends of the segments results in a post having sufficient strength to withstand wind loading even when signs are attached to the post.

3,570,377

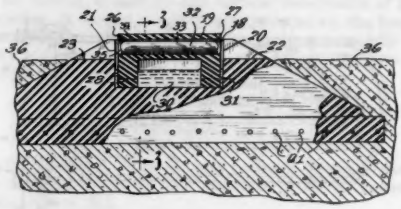
EMBEDDED HIGHWAY REFLECTOR MARKER

Boris Gerber, 3807 W. Keeney, Skokie, Ill.

Filed June 11, 1969, Ser. No. 832,361

Int. Cl. E01c *23/16*

U.S. Cl. 94—1.5 4 Claims



A highway reflector-type marker comprising a base having an upstanding holder formation or box having an upwardly opening cavity, said base and box being of unitary construction and preferably of molded rubber. A resilient pad carrying light reflecting members or lens exposed at opposite ends of the pad is removably installed in the cavity with the lens exposed to reflect light from the headlamps of an oncoming vehicle impinging thereon. The pad and box cooperate to provide a reservoir for fluid such as rain water, and the pad is arranged to protrude above the upper end of the box and be compressed when it is run over by a vehicle to squirt a charge of fluid across the faces of lens for cleaning same.

3,570,378

EXPANSION JOINT FOR CONCRETE SLABS

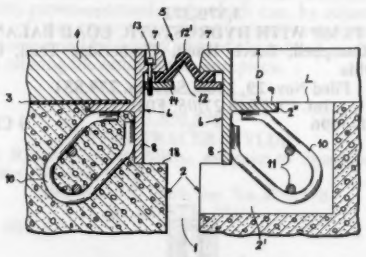
Heinrich Honegger, Wendelbuck 323, 8196 Wil Zurich, Switzerland

Filed July 16, 1968, Ser. No. 745,147

Claims priority, application Switzerland, July 18, 1967, 10243/67

Int. Cl. E01c *11/10*

U.S. Cl. 94—18 8 Claims



Two concrete slabs separated by a gap are interconnected by an expansion joint formed by a pair of metal profiles which have horizontal flanges flush with the upper slab surfaces and vertical webs projecting upwardly therefrom to the top of a traction layer supported by the slabs; the profiles have confronting projections extending into the gap and supporting a gable-shaped sealing strip of elastomeric material clamped onto these projections.

3,570,379

SEALANT STRIP INSTALLING MACHINE

Robert J. Johnson, Timonium, Md. (6720 Whitestone Road, Baltimore, Md. 21207)

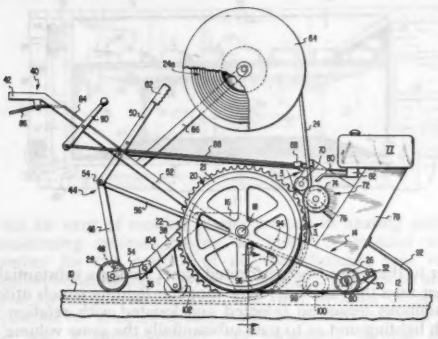
Filed June 26, 1969, Ser. No. 836,844

Int. Cl. E01c *23/02*

U.S. Cl. 94—39 4 Claims

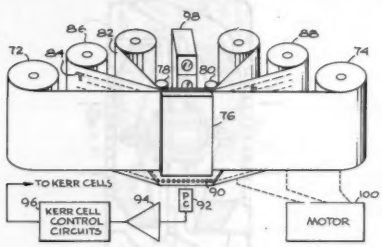
A sealant strip installing machine including a strip-installing disc keyed to a common axle and a pair of smaller

diameter machine support and disc-driving wheels similarly keyed to the common axle to cause linear compression or "stuffing back" of resilient strip material contactable with the installing disc and a pair of discs, one on each side of the in-



stalling disc, to prevent the strip material from twisting as it is forced into slots in a concrete roadway. The machine may also include means for lowering and raising the machine to operable and inoperable positions relative to a joint to be sealed.

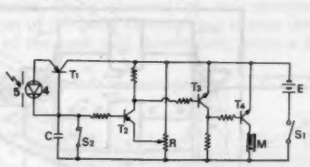
3,570,380
IMPACTLESS TYPEWRITER
Bernard Kamenstein, Paramus, N.J., assignor to Ing. C. Olivetti & C.,S.p.A., Ivrea, Italy
Filed June 7, 1968, Ser. No. 735,407
Int. Cl. B41b *13/00*
U.S. Cl. 95—4.5 **5 Claims**



An impactless printing system is provided wherein a light source is used to illuminate a thermographic material through a character-shaped aperture in a mask. The light source generates enough heat in the thermographic material to cause it to be transferred, in the character shape to a receiving substrate.

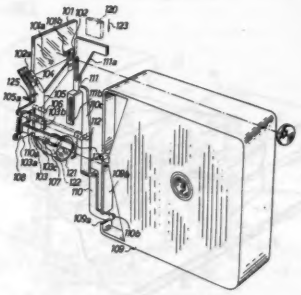
3,570,381
PROGRAMMED ELECTRONIC SHUTTER
Arata Satoo, and Yasuo Uchida, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd.
Filed June 25, 1968, Ser. No. 739,739
Claims priority, application Japan, July 3, 1967, July 4, 1967, May 30, 1968, 42/57372;42/57685;43/36356
Int. Cl. G03b *7/08, 9/08*
U.S. Cl. 95—10 **3 Claims**

A control circuit and apparatus for automatically controlling the exposure time and aperture opening of a camera is provided in which a photovoltaic cell is mounted on a camera and connected to a transistor controlled triggering circuit for effecting shutter closure automatically in response to a predetermined amount of light incident on the photovoltaic cell. To automatically control the aperture opening a diaphragm is provided in front of the photovoltaic cell and is linked to the lens diaphragm. Both diaphragms are opened at



a predetermined rate upon actuation of the shutter release to provide a continuously varying lens opening, the proper aperture opening being automatically determined by the automatic closure of the shutter by the triggering circuit.

3,570,382
PHOTOGRAPHIC CAMERA WITH FILM TYPE INDICATING MEANS
Karl Neudecker, Munich; Johann Zanner, Unterhaching, and Anton Theer, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Sept. 5, 1968, Ser. No. 757,674
Claims priority, application Germany, Sept. 9, 1967, A28356
Int. Cl. G03b *17/20*
U.S. Cl. 95—11 **22 Claims**

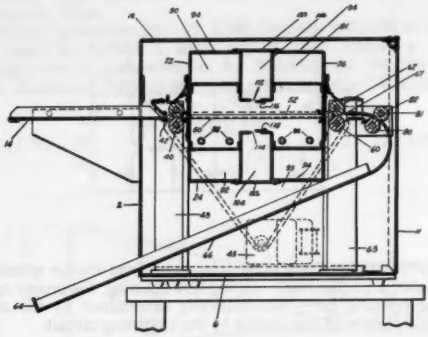


A photographic camera which utilizes magazines provided with coding marks indicating the film type therein has a movable detector which can be engaged by the coding mark of that magazine which is inserted into the camera to thereby move one of several light-transmitting flags into the view finder window. The color and/or other characteristics of each flag are representative of a particular film type. The detector is further movable by a pusher which is caused to change its position in response to attachment of an illuminating arrangement.

3,570,383
APPARATUS FOR DEVELOPING AND FIXING A THERMODEVELOPABLE PHOTOGRAPHIC MEDIUM
Eugene Berg, Westbrook, Maine, assignor to Scott Paper Co., Delaware County, Pa.
Filed Nov. 6, 1967, Ser. No. 680,873
Int. Cl. G03d *7/00*
U.S. Cl. 95—89 **4 Claims**

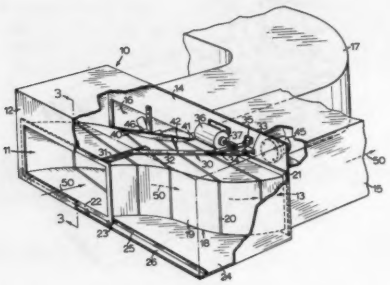
An apparatus for developing a photographic medium by heating the medium to volatilize the chemical components on the surface of the medium and remove the volatilized components from the surface. The developing apparatus comprises a developing chamber, including appropriate heating elements, a gas-dispersing system to supply entraining gases

to the surface of the photographic medium and an exhaust system to remove the volatilized components and transport-



ing means for conveying the photographic medium through and out of the developing chamber.

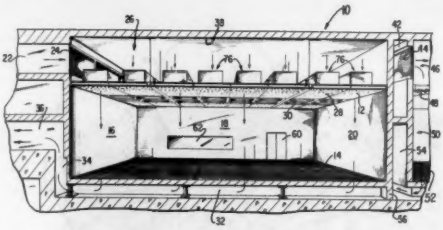
3,570,384
SMOKE AND FIRE ISOLATION DEVICE
Wallace C. McLeod, 19 Mountsfield Drive, London, Ontario, Canada
Filed July 9, 1969, Ser. No. 840,326
Int. Cl. E05f *15/20;* **F24f** *11/02*
U.S. Cl. 98—1 **8 Claims**



A device for the isolation of smoke and fire in a ventilation system, in which an impervious box is interposed in the ventilation duct. The box has a pair of laterally offset openings in opposite walls of the box with a laterally flexible and a longitudinally compressible smoke impervious and fire retardant duct within the box connecting the two openings. The flexible duct is movable laterally out of registration with one of the openings to bear against the adjacent wall or equivalent plate means, with the consequent compression of the flexible duct providing a positive seal for the duct.

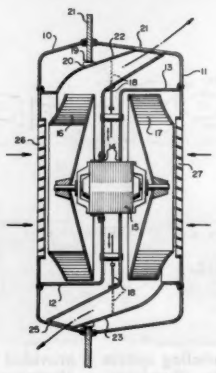
3,570,385
MODULAR PANEL SYSTEM FOR CLEAN ROOM
Charles A. Heisterkamp, Westtown, and William K. Walker, Penllyn, Pa., assignors to American Home Products Corporation, New York, N.Y.
Filed Dec. 24, 1968, Ser. No. 786,564
Int. Cl. F24f *3/16*
U.S. Cl. 98—32 **1 Claim**

The disclosure is directed to a clean room design which has a uniform vertical laminar air flow pattern and which will provide a Federal Standard No. 209A, Class 100, environment in sterile gourning areas, around high-speed parenteral drug-filling apparatus, and in like environments. The disclosure is also directed to modular lighting panel designs for use in such a room. A basic modular panel is made up of a frame supporting a perforated panel on the outlet side and an absolute filter on the inlet side. A transition piece connects the



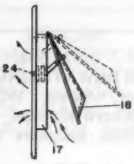
filter to the frame, the perforated panel having a substantially larger area than the filter. The modular lighting panels utilize foraminous lenses so selected and located with relation to each lighting unit as to pass substantially the same volume of air per unit time as other modular panels used in the room.

3,570,386
VENTILATING FAN UNIT
Ludwig Baumann, St. Gallen, Switzerland, and Benno Schutze, Frankfurt am. Main, Germany
Filed Jan. 28, 1969, Ser. No. 794,569
Claims priority, application Switzerland, Jan. 29, 1968, 1359/68
Int. Cl. F24f *13/00*
U.S. Cl. 98—33 **8 Claims**



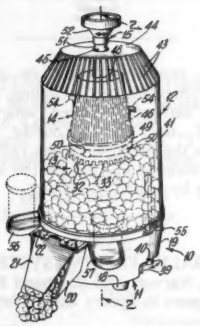
The invention provides a ventilating fan unit insertable into an opening in a windowpane or the like partition and adapted to propel air from the outside atmosphere into a ventilated interior and at the same time to exhaust air from the ventilated interior to the outside atmosphere, which comprises two half shells which cover the outside and inside respectively of said opening and bear with their peripheral edges against opposite sides of the edges thereof to form a gas and liquidtight joint. Each shell is formed with a central recessed portion the floors of which are detachably connected back to back. To said floors a common fan motor is affixed, the two shaft ends of which extend axially into the recessed portions where they carry flow fans. Each fan propels an air stream in countercurrent to the other. The recessed portions are formed with nozzles projecting from the periphery of said portions and extending through the opening in the partition.

3,570,387
AIR VENTS
James W. Eggers, 9450 Shartel Drive, Shreveport, La.
Filed Mar. 28, 1969, Ser. No. 811,495
Int. Cl. F24f 13/00
U.S. Cl. 98—106 2 Claims



An air vent of molded plastic for use in heating and air conditioning systems having an integrally molded valve member for the control of air therethrough, said valve member constituting a "living" hinge since it is cast as an integral part of the vent section, said valve member being also adjustable for selected openings with respect to said vent section and a simultaneously but separately formed latch member having quick attachable features for making said selected valve openings.

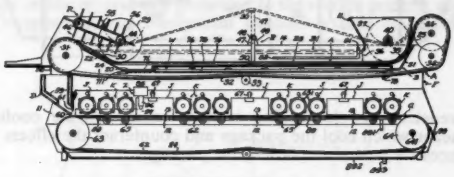
3,570,388
POPCORN POPPER
Robert Gottlieb, Jackson Heights, N.Y., assignor to Argo Industries Corporation, Jackson Heights, N.Y.
Filed Apr. 25, 1969, Ser. No. 819,261
Int. Cl. A23l 1/18
U.S. Cl. 99—238.1 10 Claims



A popcorn popper having an outer housing, a centrally disposed heating device within said housing and means extending upwardly from the heating element with a portion thereof extending through the upper wall of the outer housing whereby corn to be popped may be inserted into the popper without removing the outer housing and at the same time retaining the corn in contact with the heating element until the kernels are actually exploded whereupon the popped corn can be discharged into the container surrounding the heating element, and an additional supply of kernels introduced into the popper. The outer housing includes means for discharging the popped corn therefrom.

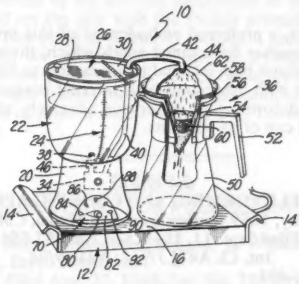
3,570,389
APPARATUS FOR PROCESSING PLASTICIZED CHEESE
Nicholas E. Pontecorvo, Tarzana, and Wilfred A. Shaffer, Los Angeles, Calif., assignors to American Foods Machinery Corporation, Memphis, Tenn.
Original application July 12, 1968, Ser. No. 744,499, now abandoned. Divided and this application Apr. 16, 1969, Ser. No. 836,185
Int. Cl. A23c 19/02
U.S. Cl. 99—243 5 Claims

Disclosed herein is apparatus for processing raw cheese curd into fine, plasticized, substantially homogeneous cheese such as Mozzarelli, wherein the curd is carried by a stainless steel conveyor belt through an elongated body of water which is heated by steam or hot water circulated in heat-exchange ducts in the bottom of the tank which holds the water; the curd, after being softened and moistened by the heated water, being elevated by its conveyor belt up an incline, out of the body of water and thence discharged over the end of the tank and downwardly onto a kneading belt



which carries it beneath successive kneading rollers and finally delivers the fully processed cheese to a receiving apparatus such as an elevator or conveyor. Successive kneading rolls flatten the cheese into ribbon form. Between successive rolls the cheese ribbon is gathered and folded over upon itself preparatory to being again flattened beneath the next roll. Salt may be applied to the cheese ribbon at a suitable station along the kneading ribbon.

3,570,390
COFFEE MAKER, OR THE LIKE
Hans Jordan, 2260 Maravilla Drive, Hollywood, Calif., and Peter C. Jordan, 110 Pleasant St., Lexington, Mass.
Filed Dec. 4, 1969, Ser. No. 881,983
Int. Cl. A47j 31/32
U.S. Cl. 99—282 9 Claims

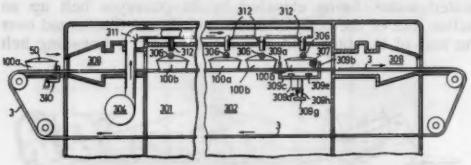


A drip-type coffee maker which maintains the hot water in contact with the ground coffee for at least approximately the same length of time irrespective of the quantity of coffee being brewed, within the capacity range of the apparatus. The coffee maker includes a drip pot, a water reservoir, a heat actuable, flow-through pump for pumping hot water from the reservoir to the drip pot, an electric heater for actuating the pump, and adjustable thermostatic control means regulating the heat output of the heater for causing the pump to deliver different quantities of hot water from the reservoir to the drip pot in approximately equal overall time intervals, the control means being manually adjustable to vary the overall pumping rate of the pump as a function of the quantity of water in the reservoir.

3,570,391
ELECTRONIC OR MICROWAVE FURNACE OR OVEN
Martin Gunnar Rejler, Vaxjo, Sweden, assignor to Rejlers Ingenjorsbyra AB, Vaxjo, Sweden
Original application June 27, 1967, Ser. No. 649,323, now Patent No. 3,490,717, dated Jan. 20, 1970. Divided and this application Sept. 16, 1968, Ser. No. 772,889
Int. Cl. A47j 37/04
U.S. Cl. 99—326 10 Claims

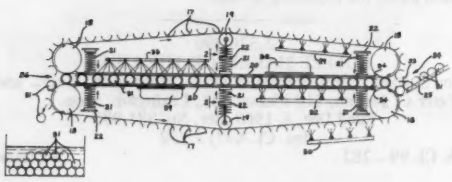
An oven for heating packages (hermetically sealed food units) in which the packages are positioned in heat-absorbing

relation to heating means. The packages are adapted to expand in response to excessive heat absorption. Sensing means are positioned to sense expansion of the package beyond a



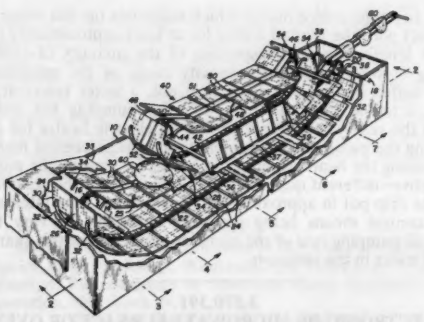
predetermined level. The sensing means activate cooling means which cool the package and counteract the effects of excessive heat absorption by the package.

3,570,392
CONTINUOUS COOKING MEANS
Maurice W. Hoover, 3620 Merwin Road, Raleigh, N.C.
Filed Mar. 26, 1968, Ser. No. 716,064
Int. Cl. A23l *3/04*
U.S. Cl. 99—361 **4 Claims**



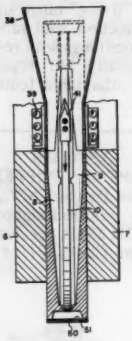
In abstract, a preferred embodiment of this invention is a continuous cooker for canned goods which, through the use of jackets, allows high internal temperatures to be reached in a short time with associated high internal pressures without expanding, deforming or otherwise adversely affecting the shape of the can or its contents.

3,570,393
TACO SHELL FORMING AND COOKING APPARATUS
Frank R. Schy, 1659 Borden Ave., San Mateo, Calif.
Filed Sept. 11, 1969, Ser. No. 857,056
Int. Cl. A47j *37/12*; **A21c** *9/08*
U.S. Cl. 99—404 **19 Claims**



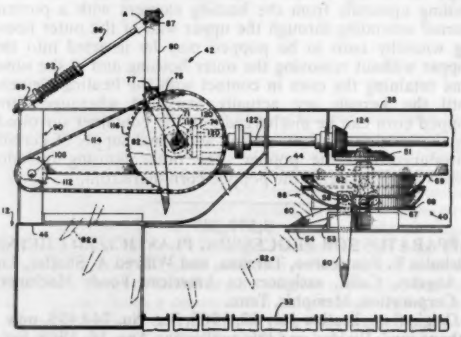
A taco shell forming and cooking apparatus including a beltlike conveyor web formed of a plurality of discrete flexible or articulated segments which are drawn through a cooking bath while being deformed in a predetermined manner. A forming means is disposed above the conveyor web so as to mate therewith as the web is deformed and drawn through the cooking bath. A food product in sheet form placed on the conveyor will be deformed by the mating web, and forming means will be cooked as it is drawn through the cooking bath. Upon emerging from the bath, the forming means is disengaged from the conveyor web, and the shaped and cooked product is removed from the conveyor web before the conveyor web is again returned to its normal configuration.

3,570,394
RUBBER DEWATERING DEVICE
Raymond L. Christy, Akron; William S. McCormick, Cuyahoga Falls; Richard K. Senn, Akron, and Eugene E. Heston, Akron, Ohio, assignors to NRM Corporation, Akron, Ohio
Filed Oct. 16, 1967, Ser. No. 675,643
Int. Cl. B30b *9/02*, *3/04*
U.S. Cl. 100—104 **26 Claims**



A device for removing water or other liquid from elastomer or polymer slurries including a rotor and stator having opposed surfaces between which the material is directed toward the center during relative rotation therebetween. As the material moves radially inwardly, it is squeezed and/or shredded to release the water which is then thrown outwardly by centrifugal force.

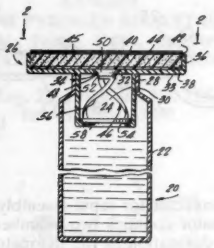
3,570,395
BALER FEEDING SYSTEM
Harry C. Eberly, Narvon, and Raymond E. Fisher, New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Aug. 31, 1967, Ser. No. 664,685
Int. Cl. B30b *1/00*
U.S. Cl. 100—189 **13 Claims**



A feeding mechanism for pickup baler in which a rotary feed unit delivers crop material to a set of packer fingers

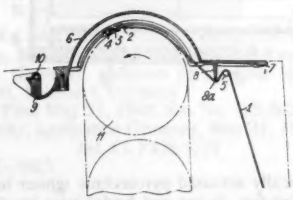
which convey the material into the bale chamber between plunger strokes. The rotary feed unit is mounted for operation about a generally vertical axis and comprises two sets of feed fingers which successively sweep crop material across the feeder platform and into the path of the packer fingers. The angular position of the feed fingers is controlled by a circular cam track.

3,570,396
STENCILLED STAMPING DEVICE HAVING FLUID FLOW VALVE CONTROL
Gilbert Schwartzman, 20 Wilmot Circle, Scarsdale, N.Y.
Filed Nov. 26, 1968, Ser. No. 778,956
Int. Cl. B41l *27/26*; B41k *1/52*
U.S. Cl. 101—125 **3 Claims**



A stamping device comprising a body having a web provided with a valve opening therethrough. A valve member is disposed in the opening and engages the web for closing the opening. A housing is secured to the body and forms an extension of the web. A stencil is disposed over a fluid reservoir pad in the housing.

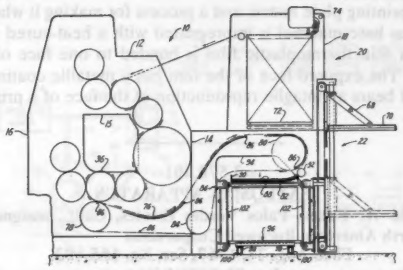
3,570,397
STENCIL DUPLICATORS
Leonard Walter Styles, London, England, assignor to Gestetner Limited, London, England
Filed Sept. 5, 1968, Ser. No. 757,559
Claims priority, application Great Britain, Oct. 13, 1967, 46850/67
Int. Cl. B41l *13/06*
U.S. Cl. 101—127.1 **3 Claims**



The specification discloses a stencil duplicator including a freely rotatable bar mounted parallel to and adjacent the rising side of the top cylinder so that the lower face of a stencil may roll thereover during application to the duplicator cylinder. In the preferred embodiment the bar is adjacent a further surface which may be in the form of a rib in the top cover of the duplicator so that a tortuous stencil path is defined by the bar and further surface.

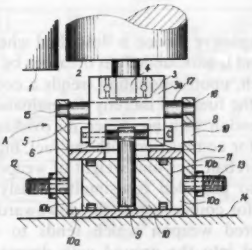
3,570,398
SHEET-FED ROTARY PRINTING PRESS
Harry E. Mowry, Pittsburgh, Pa., assignor to Miller Printing Machinery Co., Pittsburgh, Pa.
Filed June 19, 1968, Ser. No. 738,154
Int. Cl. B41f *5/02, 5/16*
U.S. Cl. 101—231 **7 Claims**

This disclosure relates to a sheet-fed rotary printing press in which the sheet-feeding mechanism and the sheet delivery mechanism are located at the same end of the press with the sheet-feeding mechanism positioned above the sheet delivery mechanism. The press includes a pair of side frames in which the cylinders of a first printing unit and a second printing unit are journaled. The first printing unit is positioned above the second printing unit and both printing units include plate, blanket and impression cylinders. Three transfer cylinders connect the first printing unit to the second printing unit and are arranged to transfer the sheets with either the obverse side or the reverse side presented to the second printing unit. The sheet-feeding mechanism includes a feed board that



feeds the sheets directly to the impression cylinder of the first printing unit. The sheet delivery mechanism includes an endless conveyor with gripper means that engages the front edge of the sheet as it leaves the impression cylinder of the second printing unit and conveys the sheet to a receiver. The sheet is inverted by the delivery mechanism so that the sheet is deposited on the pile with the freshly printed side facing upwardly. The press side frames include a central opening therethrough for access to the transfer cylinders and the cylinders of the printing units. Other openings are provided in auxiliary side frames for transverse movement of receivers for the piles of printed sheets delivered by the sheet delivery mechanism.

3,570,399
ADJUSTABLE SUPPORT FOR ROLLERS AND PRINTING PRESSES
Willi Fink, Bern, Switzerland, assignor to Winkler, Fallert & Co., Ltd., Bern, Switzerland
Filed Aug. 27, 1968, Ser. No. 755,531
Int. Cl. B41f *31/00*
U.S. Cl. 101—352 **4 Claims**



A support member, adjustably positioning a roller relative to a cylinder in a printing press, is formed of a housing containing a double-acting piston with working surfaces of equal area. Rigidly engaged with the piston and extending laterally from it is a rod which is in threaded engagement with a pin

fixed in a bracket. A bearing is mounted in the bracket for receiving one end of a roller. By positioning the piston the bracket is moved by means of the rod. By rotating the pin the bracket is movably positionable relative to the rod.

3,570,400
MATRIX MATERIAL FOR MOLDING DUPLICATE PRINTING PLATES

Vincent Squitieri, 128 Salem Road, Billerica, Mass., and Dick J. Wollmar, Old Winter St., South Lincoln, Mass.

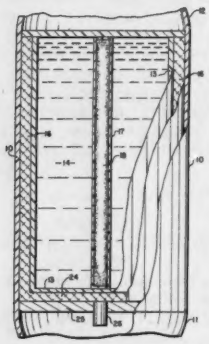
Original application June, 1965, Ser. No. 462,446, now Patent No. 3,483,074. Divided and this application Apr. 18, 1969, Ser. No. 840,878
Int. Cl. B41d *3/00*; B41n *11/00*
U.S. Cl. 101—401.2 **4 Claims**

A printing plate matrix and a process for making it where a fibrous base material is impregnated with a heat-cured resin and a thin thermoplastic film is bonded to one face of the base. The exposed face of the film has a metallic coating on it and bears an intaglio reproduction of the face of a printing form.

3,570,401
EXPLOSIVE APPARATUS

Harold W. Euker, Palos Verdes Estates, Calif., assignor to North American Rockwell Corporation

Filed Aug. 24, 1967, Ser. No. 665,193
Int. Cl. F42b *25/14*
U.S. Cl. 102—6 **6 Claims**

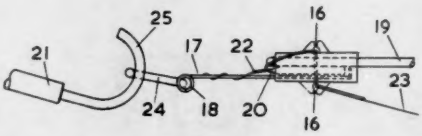


A fuel-air explosive device is described wherein a body of combustible fuel is surrounded on the sides by a layer of high explosive which, upon detonation, sends a converging shock wave through the fuel and thereby disseminates the fuel radially for combustion with air. Since no oxidizer is carried in the apparatus for combustion with the fuel, high efficiency in the resultant fireball, per unit weight of weapon, is obtained. Means are also provided for simultaneously disseminating fuel upwardly for counteracting the downward velocity of an aerially delivered weapon which tends to drive the disseminating fuel into the ground with decreased efficiency. The downward velocity is countered by a layer of explosive across the forward end of the body of fuel for imparting a longitudinally upward force thereto. In another embodiment unequal explosive layers are provided at opposite ends of the body of fuel for providing both upward and downward forces thereto with a net upward force.

3,570,402
DETONATOR CONNECTOR

David Keay Crichton Anderson, Troon; Keith Brian Ellis; Edward Mullen, Stevenston; Frank McDonald Murray, Kilmarnock, and William Neilson, Stevenston, Scotland, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 11, 1968, Ser. No. 766,811
Claims priority, application Great Britain, Oct. 11, 1967, 46,417/67
Int. Cl. F42b *3/10*
U.S. Cl. 102—22 **15 Claims**



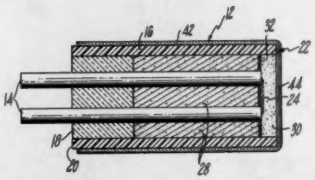
Detonator connector for rapid assembly of detonator fuse cord and detonator contains two chambers. These are connected so that detonation of the detonator in one chamber will effect detonation of the fuse cord in the other chamber.

This connector is for use in marine seismographic prospecting and adds to the speed and safety of the operation.

3,570,403
PYROTECHNIC IGNITER

John D. Hawley, East Hartland, and William M. Smith, Simsbury, Conn., assignors to The Ensign-Bickford Company, Simsbury, Conn.

Filed Nov. 6, 1968, Ser. No. 773,808
Int. Cl. F42b *3/12*
U.S. Cl. 102—28 **7 Claims**



An electrically actuated pyrotechnic igniter having its initiating or first-fire charge and bridge wire located adjacent the output end of the igniter with the main or sustaining charge positioned rearwardly thereof and providing prolonged flame output.

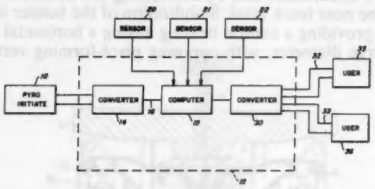
3,570,404
ELECTRICAL PYROTECHNIC PROGRAMMING SYSTEM

Kenneth E. Pope, Litchfield Park, Ariz., assignor to Unidynamics/Phoenix, Goodyear, Ariz.

Filed June 21, 1968, Ser. No. 739,066
U.S. Cl. 102—70.2 Int. Cl. F42b5/08 **5 Claims**

An electrical pyrotechnic programming system, including a pyrotechnic signal source for activating an electrical power source. The power source provides current to an electrical switching system, including individual switches responsive to velocity acceleration and barometric altitude. Closure of the switches after actuation of the electrical power source produces a pyrotechnic output signal by igniting bridge wires.

The power source comprises parallel connected batteries, the first of which is a type known as a thermal battery, and the



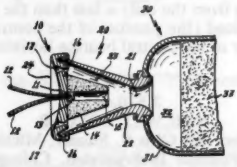
second of which is a more conventional nickel-cadmium battery.

3,570,405

EXIT CONE PYROGEN ROCKET IGNITER

Paul A. Heady, Jr., Felton, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Aug. 23, 1968, Ser. No. 755,012
Int. Cl. F02p *23/00*
U.S. Cl. 102—70.2 **1 Claim**



A pyrogen igniter assembly for use with a solid propellant rocket motor. The igniter assembly, which fits at, and within, the exit cone portion of the divergent type nozzle of the main rocket motor, comprises an igniter charge of the solid grain type bonded to a burst disc having a plurality of ports therein. The igniter charge has a centrally located port, at the end of which is positioned an electrically activated initiator embedded in a pyrotechnic charge. Upon application of current, the initiator ignites the pyrotechnic charge which, in turn, ignites the internal surface of the igniter charge. The resultant back flow of gases toward the burst disc ports ignite the outer surfaces of the igniter charge. The main propellant charge of the rocket motor is thus subjected to the hot combustion gas, the radiant energy, and the hot solid particles of the igniter charge and, therefore, ignites.

3,570,406

PRACTICE CARTRIDGE FOR AUTOMATIC FIREARMS

Hubert Frey, Steyerberg, and Hans-Joachim Kaseler, Sieglar, Oberlahr, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

Filed May 31, 1968, Ser. No. 733,362
Claims priority, application Germany, May 31, 1967, D53206
Int. Cl. F42b *9/20*
U.S. Cl. 102—92.7 **11 Claims**

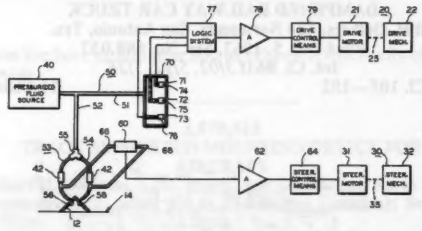
The projectile of the practice cartridge for automatic firearms consists of a synthetic jacket with a loose bulk granular filling, wherein the jacket will disintegrate upon exiting from the firearm barrel after firing to release the granules, which will be nondestructable during firing. Each granule consists of a heavy metal powder held together by a synthetic binder in the range of about 20 to 45 percent by weight. Each granule is disclike or lenticular in configuration.

3,570,407

AUTOMATIC VEHICLE CONTROL SYSTEM

Arthur R. Burch, Battle Creek, Mich., assignor to Clark Equipment Company

Continuation of application Ser. No. 704,742, Feb. 12, 1968, now abandoned. This application Apr. 7, 1970, Ser. No. 24,423
Int. Cl. B61b *13/00*; **B62d** *5/00*
U.S. Cl. 104—242 **4 Claims**



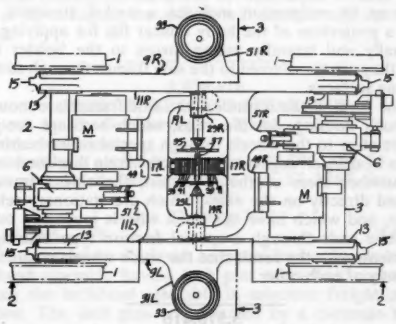
An automatically controlled vehicle is driven longitudinally along a path defined by an inverted angle iron track. An air pressure system on the vehicle has outlets discharging against opposing surfaces of the angle iron to produce a back pressure at each outlet varying with the distance of the outlet from the angle iron surface. The pressure at each of the outlets is sensed by a differential pressure transducer and a signal varying as the difference between the pressures is applied to a steering system to control the direction of movement of the vehicle. Other air outlets having pressure sensitive switches adjacent to the outlets are located on the vehicle and blocking plates are mounted at selected stations along the track to create a back pressure at the outlets. The back pressure when an outlet is adjacent a plate is sensed and analyzed by a logic system to control movement of the vehicle along the track.

3,570,408

BOLSTERLESS TRUCK HAVING PIVOTALLY CONNECTED SIDE FRAME

Richard L. Lich, Town and Country, Mo., assignor to General Steel Industries, Inc., Granite City, Ill.

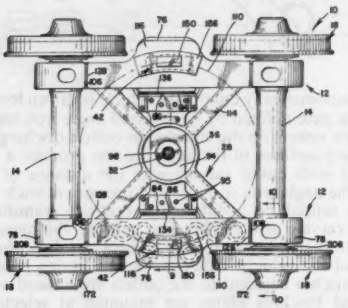
Filed Oct. 30, 1968, Ser. No. 771,864
Int. Cl. B61c *3/00*; **B61f** *3/04*, *5/02*
U.S. Cl. 105—133 **9 Claims**



A railway truck comprising a pair of wheeled axles, separate side frames supported at their ends on the axles and each having transverse inboard extensions offset longitudinally of the truck from each other on opposite sides of the transverse centerline of the truck and terminating adjacent

the other side frame, the terminals of each extension being pivotally connected to the opposite side frame on the transverse axis of the truck, upright combined pneumatic and elastomeric springs carried by the side frames on outboard brackets for directly supporting a vehicle body, and draft-transmitting means for connecting said extensions to the vehicle body at the center of the truck to accommodate transverse vertical and swivel movements of the body relative to the truck while preventing relative longitudinal movements therebetween. The long rigid transverse arms formed by the side frame inboard extensions resist tendencies of the side frames to tilt transversely and thus permits wide spacing of the body support springs on side frame outboard brackets, and provides a stable support for motors, driving gear boxes and the like.

3,570,409
DAMPENED RAILWAY CAR TRUCK
Alfred H. Oelkers, 424 Normandy, San Antonio, Tex.
Filed Dec. 5, 1967, Ser. No. 688,037
Int. Cl. B61f *3/02, 5/12, 5/28*
U.S. Cl. 105—182 **11 Claims**



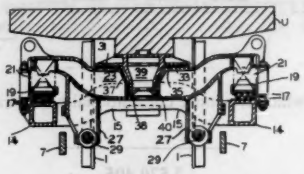
The invention relates to a railroad car truck in which the side frames are carried inboard of the wheels on supports that are stationary relative to the side frames. The side frames are provided with spring seats that are substantially aligned with the planes of the wheels on either side of the truck and support through spring groups a bolster of special design that supports the weight of the car body at two points on either side of the bolster, which points are aligned with the respective spring groups. The truck bolster is pivoted to the car body bolster by the usual kingpin, but the coupling arrangement involved is such that none of the body weight is supported at the customary center plate area of the bolster, which area is eliminated in the present truck. The truck bolster at its midportion includes a socket structure into which a projection of the body bolster fits for applying longitudinally and laterally acting forces to the bolster from which they are transferred to the side frames through suitable engaging surfaces.

In one form of the invention, the side frames are mounted on tubular housings for the axles, which housings are journaled relative to the wheels through special roller bearing or friction bearing arrangements that are herein disclosed.

In another form of the invention, the side frames are mounted directly on the axles, which are stationary relative thereto, and which have the truck wheels journaled on the respective ends through a special friction type bearing arrangement, with the result that the truck wheels rotate independently of each other.

3,570,410
RAILWAY LOCOMOTIVE TRUCK
Robert E. Stein, Dorsey, Ill., assignor to General Steel Industries, Inc., St. Louis, Mo.
Filed Nov. 13, 1968, Ser. No. 784,277
Int. Cl. B61c *9/48;* **B61f** *3/04, 5/06*
U.S. Cl. 105—199 **11 Claims**

A railway locomotive truck in which weight transference from axle to axle is substantially reduced by stabilizing the spring-supported bolster against tipping with respect to the locomotive underframe and by connecting the bolster to the truck frame near track level. Stabilization of the bolster is effected by providing a central bearing having a horizontal surface of large diameter, with opposing pivot-forming vertical



cylindrical surfaces on the underframe and bolster parts at a sufficiently low level below the top of the bolster that the moment of the tractive force tending to tip the bolster (the product of the tractive force and the height of the pivot-forming surfaces from the rail) is less than the moment of the central bearing load (the product of the central bearing load and the diameter of the central bearing horizontal surfaces).

3,570,411
RAILWAY BOXCAR
Franklin P. Adler, and Glen R. Shaner, Michigan City, Ind., assignors to Pullman Incorporated, Chicago, Ill., a fractional interest to each and Pullman Transport Leasing Company, Chicago, Ill., a fractional interest to each
Continuation of application Ser. No. 619,446, Feb. 28, 1967, abandoned.
This application May 26, 1969, Ser. No. 830,578
Int. Cl. B60p *7/08;* **B65j** *1/24*
U.S. Cl. 105—366 **3 Claims**

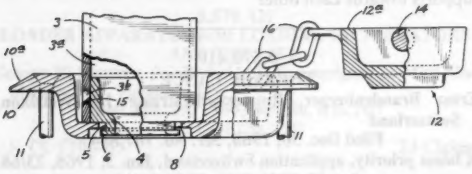
In a conveying arrangement for moving cargo such as stacks of sheet plywood and the like in a railway boxcar, platforms are mounted for lengthwise movement along the car floor from a loading location adjacent the door opening in the car sidewall to stowed positions in the enclosed ends of the car, and each platform includes resilient bumpers at each of its ends, the inner bumper (nearer the door opening) being engageable by a stop lever mounted on a transverse pivot in the car floor biased for rising to hold the platform in a stowed position with its opposite bumper pressed against the car end wall, and each stop lever being depressible, with compression of the engaged inner bumper, to a releasing position below the platform after said bumper expands over the depressed stop lever.

3,570,412
CAPTIVE BRACE ROD AND TRACK
Robert E. Holman, Jr., 10619 Doric St., Dallas, Tex.
Filed Dec. 20, 1968, Ser. No. 785,679
Int. Cl. B61d *45/00*
U.S. Cl. 105—369 **6 Claims**

A spring-loaded telescopic brace rod extending between the ceiling and floor of a load carrying body such as a trailer which is captively supported from a track system in the ceiling to enable movement of the brace rod along the track system when it is in a retracted position with the track system

and brace rod including interengaging lock means for locking the brace rod to the track system in the ceiling and a perforated rail in the floor when the brace rod is in extended position.

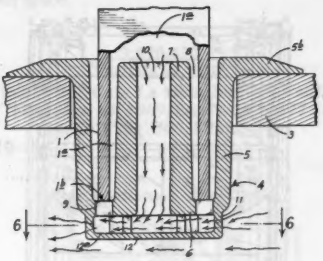
3,570,413
SOCKET FITTING FOR BRACING POSTS
William Don Miller, 707 American Bank Bldg., Portland, Oreg.
Filed Dec. 26, 1968, Ser. No. 786,942
Int. Cl. B61d 45/00
U.S. Cl. 105—369 4 Claims



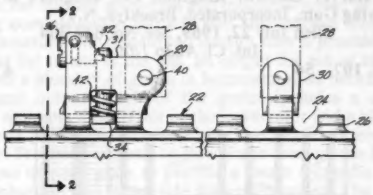
This development concerns load bracing members arranged vertically in a railroad freight car of the boxcar type. It is principally concerned with the loose mounting of said vertically disclosed load braces in related floor sockets so that said braces may easily be engaged and separated respectively when they are axially aligned. They are interfitted to accommodate movement of each brace in its floor socket, but yet inhibits inadvertent detachment therewith. That is said interfit of the braces and sockets at their lower ends accommodate lateral movement freely past axial alignment in any direction, particularly when they bear against cargo.

3,570,414
VENTILATED TUBULAR BRACING AND MOUNT THEREFOR
William Don Miller, 707 American Bank Bldg., Portland, Oreg.
Filed Dec. 30, 1968, Ser. No. 787,949
Int. Cl. B61d 45/00
U.S. Cl. 105—369 6 Claims

This invention improves a railway boxcar having vertical tubular load supporting posts provided with ventilating ports extending from the bores of said posts to the interior surface thereof with floor mounts fitting the lower ends of said tubes, respectively, and a constricting upstanding nozzle located centrally of each mount and with an underlying passageway extending across said nozzle to produce high velocity—low pressure in the bore of said nozzle to draw air downwardly from the bore of said post and to exhaust it exteriorily of said boxcar.



3,570,415
TRACK SUPPORTED MOUNTING DEVICE FOR AIRCRAFT
Robert H. Drinnon, Kent, Wash., and Leo Huttas, North Massapequa, N.Y., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 13, 1968, Ser. No. 783,602
Int. Cl. B61d 45/00; B60p 7/08
U.S. Cl. 105—369 2 Claims

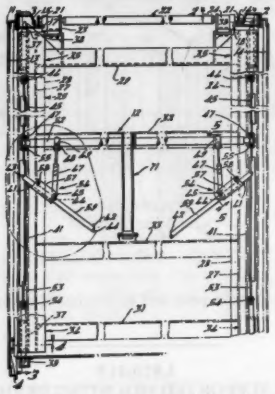


A device for mounting payload units on a rail in airplanes. The base structure has an integral caliper-type configuration for slidable engagement about the head portion of a rail structure. A spring mounted plunger and associated actuating means, such as an eccentric, are carried by the device and upon actuation of the eccentric, the plunger will extend into a rail cutout or detent for securing the caliper engagement and thus locking the device to the rail. Upon further actuation of the eccentric the plunger will contract and unlock the device.

3,570,416
FREIGHT-BRACING APPARATUS
Jackson A. Shook, Northville, Mich., assignor to Evans Products Company
Continuation of application Ser. No. 482,576, Aug. 25, 1965, now abandoned. This application Nov. 27, 1967, Ser. No. 685,980
Int. Cl. B60p 7/14
U.S. Cl. 105—376 4 Claims

This application discloses an open frame freight-bracing bulkhead assembly having lock pins at its four corners for locking the bulkhead assembly in selective freight-bracing position. The lock pins are actuated by a common torque shaft that extends across the frame and which torque shaft may be operated by a respective operating handle assembly supported at either side of the frame. The operating handle assembly is comprised of a supporting bracket that is pivotally supported upon the frame and is connected by a link to the torque shaft for rotating it upon pivotal movement of the bracket. An elongated handle is slidably supported by

the bracket and is movable from a first position wherein it may be operated through a face of the bulkhead to a second

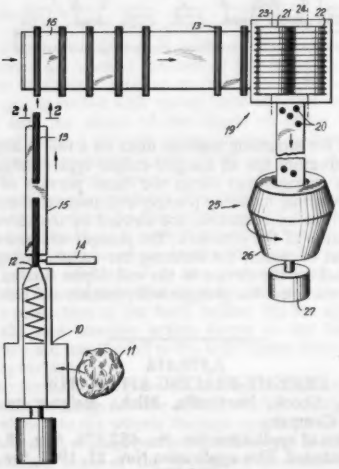


position wherein it extends outwardly of the side of the bulkhead assembly and may be actuated therefrom.

3,570,417
METHOD OF MAKING DECORATIVE CONFECTIONERY PRODUCT

Fred Herrmann, Clarks Summit; Alexander Tomczyk, Laflin, and Harvey Sdorow, Kingston, Pa., assignors to Topps Chewing Gum, Incorporated, Brooklyn, N.Y.

Filed July 22, 1969, Ser. No. 843,304
Int. Cl. A23p *1/00*
U.S. Cl. 107—54 **4 Claims**

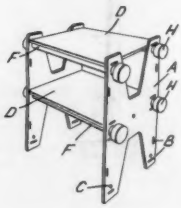


The method of making a multicolored confectionery product which includes the steps of extruding or otherwise forming an elongated length of a deformable plastic confection matrix material to provide a corrugated, three-dimensional surface, severing the length at spaced positions to define a series of increments, the formerly attached surfaces of the increments being substantially free of corrugations, and thereafter subjecting the several increments to a surface coloring step whereby the end or severed portions and the outer extremities of the corrugated portions are colored and the land areas between the corrugations are maintained essentially free of color, thus to define a multicolored confectionery item.

3,570,418
ASSEMBLY OF ELEMENTS TO FORM ARTICLES OF FURNITURE

Anthony Edward William Gooding, 400 Durnsford Road, London,S.W.19, England

Filed Dec. 3, 1968, Ser. No. 780,835
Claims priority, application Great Britain, Dec. 6, 1967, 55,559
Int. Cl. A47b *3/06*
U.S. Cl. 108—111 **4 Claims**

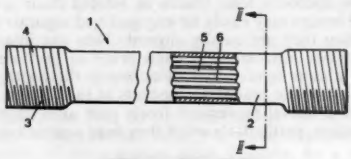


The invention relates to an assembly of elements which can be readily placed together to form differing types of furniture. Equally, such furniture may be dismantled and the type of furniture changed, for instance the form may be a chair or a table or a table top with a shelf, etc. It consists of generally two rigid supports between which is placed a rigid element, such rigid element being engaged by means of tongues and slots, and the whole structure being rigidly held together by interconnecting elements adapted to tighten the supports towards each other.

3,570,419
THERMIC LANCE

Ernst Brandenberger, Rapperswilerstrasse 15, Wetzikon, Switzerland

Filed Dec. 30, 1968, Ser. No. 787,854
Claims priority, application Switzerland, Jan. 3, 1968, 23/68
Int. Cl. F23b *7/00;* **F23d** *21/00*
U.S. Cl. 110—1 **6 Claims**

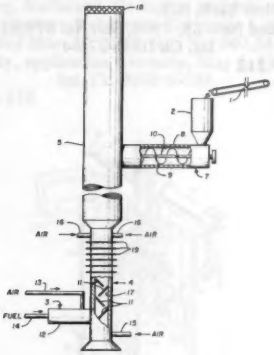


A thermic lance which is operated by gaseous combustion and serves for forming openings in concrete, building walls and the like. The lance is equipped with a steel tube packed with a plurality of rods. Oxygen is passed through the tube and the lance ignited to produce an intense heat source that is applied to the material to be cut. The enclosing tube has with the exception of is ends a cross-sectional shape which is other than circular.

3,570,420
PROCESS FOR THE REMOVAL OF HYDROCARBONS CONTAINED IN EARTH CUTTINGS FROM SUBTERRANEAN WELLS

Raymond K. Lewis, and Marion G. Bingham, Harris County, Tex., assignors to Milchem Incorporation, Houston, Tex.

Filed May 7, 1970, Ser. No. 35,488
Int. Cl. F23g 7/00
U.S. Cl. 110—8 5 Claims

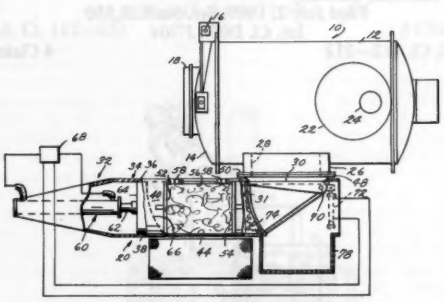


The present invention relates to a continuous combustion process for the substantially complete removal of the hydrocarbon content of cuttings from subterranean wells by combustion means which do not emit air-fouling gases. A feature of this invention is the provision of means for retarding the movement of cuttings through an elongated combustion apparatus to subject them to conditions of high temperature and an excess of oxygen to obtain complete combustion of the hydrocarbon content thereof.

3,570,421
LOADER APPARATUS FOR LOADING INCINERATORS AND THE LIKE

George H. Flowers, Jr., Richmond, Va., assignor to Mini-Municipals, Inc., Houston, Tex.

Filed Apr. 16, 1969, Ser. No. 816,707
Int. Cl. F23g 5/00
U.S. Cl. 110—8 23 Claims

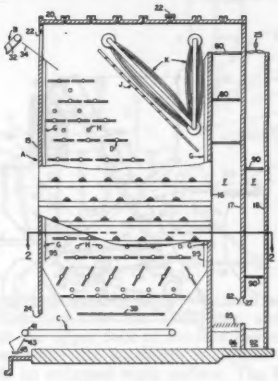


An apparatus for loading other equipment, the apparatus receiving loose material and transferring the material to an area of discharge and then discharging the material to the other equipment transverse to the direction of transfer in the apparatus. The material may be compacted in the apparatus prior to its discharge. Preferably the loader apparatus is used to charge or load an incinerator with rubbish or waste material while the incinerator may be in operation without the danger of flashback through the apparatus. Additionally, by having the loader apparatus arranged to move the waste material in a longitudinal direction and then discharging the same transversely into the incinerator, the apparatus can be positioned closely adjacent to the incinerator thereby requiring less floor space.

3,570,422
INCINERATOR

John L. Winther, 263 Calle La Mesa, Moraga, Calif.

Filed Nov. 10, 1969, Ser. No. 875,177
Int. Cl. F23g 5/00; F23h 3/04
U.S. Cl. 110—8 9 Claims

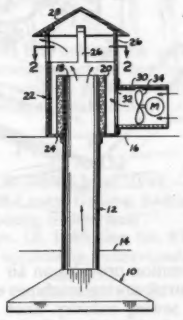


An incinerator of large dimension is provided which is suitable for burning municipal and industrial refuse of widely varying combustibility, particle size and thermal output. A tower structure with a hollowed interior core is provided with an input for refuse at the top, an output for ash at the bottom, and a plurality of grates in horizontal rows between the input and output. Each of the grates includes a central header spanning the interior of the incinerator and a plurality of spaced hollow pipes intersecting the header in coplanar relation. Provision is made to flow water through the header and pipes of each grate to provide a steam byproduct from the combustion and to provide for grate cooling. The grates each can be tilted to permit refuse to fall from an upper grate row to a lower grate row within the incinerator along a path which is away from the incinerator sidewalls.

3,570,423
CHIMNEY ASPIRATOR

Myron E. Hemmingson, Box 101, Fletcher, Okla.

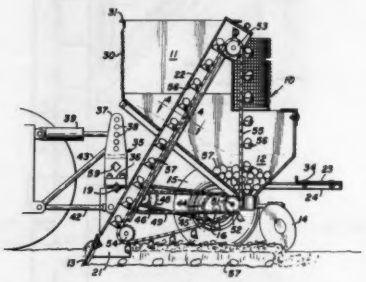
Filed Apr. 9, 1969, Ser. No. 814,682
Int. Cl. F23l 17/02
U.S. Cl. 110—160 1 Claim



Insulating material surrounds the outwardly disposed exhaust end portion of a chimney and a jacket, having inlet and outlet ports, loosely surrounds the insulated end portion of

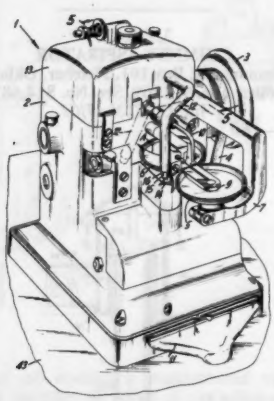
the chimney. A blower communicates with the inlet port of the jacket and moves ambient air therethrough generating a venturi action for the exhaust end of the chimney.

3,570,424
POTATO PLANTER
Jack H. Wigham, 4206 N.E. 15th St., Amarillo, Tex.
Continuation of application Ser. No. 716,740, Mar. 20, 1968, now abandoned. This application May 21, 1970, Ser. No. 37,495
Int. Cl. A01c *7/18*
U.S. Cl. 111—78 **3 Claims**



A tractor mounted three point hitch potato planter that drops the seed close to the bottom of the furrow to prevent its rolling, and which planter is closely hitched with hydraulic lift and can thereby be raised off the ground for tight turns and backing.

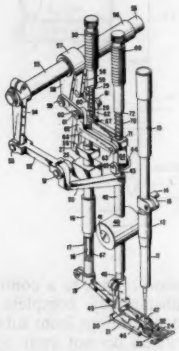
3,570,425
SEWING APPARATUS
Arthur Shulman, New York, and Henry M. Bonis, Jr., Sands Point, N.Y., assignors to Nabs Leasing Corp., New York, N.Y.
Filed July 16, 1969, Ser. No. 842,187
Int. Cl. D05b *23/00, 35/00*
U.S. Cl. 112—20 **20 Claims**



The present invention provides an air and vacuum system for use with industrial sewing machines especially those employed in the fur sewing industry. Such industrial machines generally include a horizontal needle and a pair of horizontal feeding discs. The present invention provides means to aid in material alignment, material working, material guidance and means to prevent fur hairs or the like from fouling the seam line through the provision of guide means, and means in advance of the guide means to direct a flow of air at an angle to the line of feed of the material and vacuum means along a plane away from the axial line between the discs.

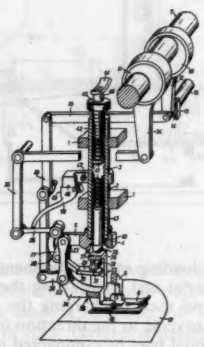
The present invention further includes means for the automatic presentation and withdrawing of the air stream carrier to operative and nonoperative positions.

3,570,426
TOP FEED MECHANISM FOR SEWING MACHINES
Earle C. Kunes, Middletown, N.J., assignor to The Singer Company, New York, N.Y.
Filed Nov. 25, 1969, Ser. No. 879,831
Int. Cl. D05b *27/04*
U.S. Cl. 112—212 **2 Claims**



A top feed mechanism which can be incorporated conveniently in sewing machines not originally designed for top feeds. The top feeding foot is slidably pivoted in the machine frame between the conventional presser bar and needle bar and is lifted and lowered by a linkage supported on a plunger telescopically arranged in the presser bar so that the presser foot will not be elevated during the feed stroke of the top feeding mechanism.

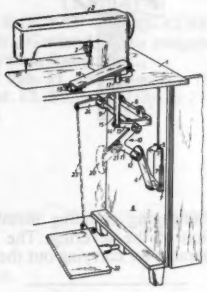
3,570,427
TOP FEED MEANS FOR SEWING MACHINES
Herbert Wenz, and Heinrich Berg, Kaiserslautern, Palatinate, Germany, assignors to G.M. Pfaff AG, Kaiserslautern, Palatinate, Germany
Filed July 2, 1969, Ser. No. 838,550
Int. Cl. D05b *27/04*
U.S. Cl. 112—212 **4 Claims**



Top feed means for sewing machines having a presser foot and a spring biased top feed foot linked to a feeding and rais-

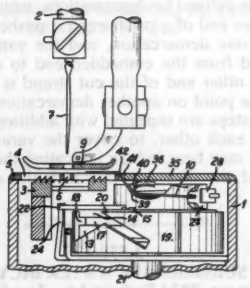
ing drive and connected with a carrier on the presser bar, which top feed foot is connected to a link connected with the feeding mechanism and joined with the carrier by a lever connected with the raising elements, which is pivotally supported by the carrier and reaches below a roller element that is arranged on the top feed foot.

3,570,428
ARRANGEMENT ON SEWING MACHINES FOR OPERATING THE MOTOR STARTER
Willi Sternberg, Karlsruhe, Germany, assignor to G. M. Pfaff A G., Kaiserslautern/Palatinate, Germany
Filed Mar. 17, 1969, Ser. No. 807,561
Claims priority, application Germany, May 6, 1968, P31,387
Int. Cl. D05b *69/00*
U.S. Cl. 112—218 **2 Claims**



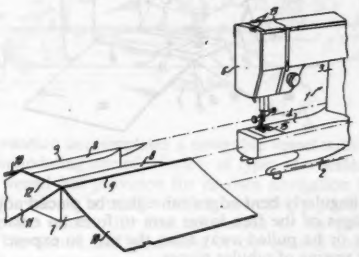
Arrangement on sewing machines for actuating the motor starter mounted on a wall in the cabinet by operating means such as a treadle, a knee pressure plate or an arm-operated hinged plate, which includes a coupling to be actuated by one of the three operating means.

3,570,429
THREAD GUIDE FOR A ROTARY-HOOK-TYPE SEWING MACHINE
Susanna Bolt, Geneva, and Harald Seifarth, Chatelaine-Geneva, Switzerland, assignors to Mefina S.A., Fribourg, Switzerland
Filed Apr. 1, 1969, Ser. No. 811,854
Claims priority, application Switzerland, Apr. 18, 1968, 6003/68
Int. Cl. D05b *57/10*
U.S. Cl. 112—233 **3 Claims**



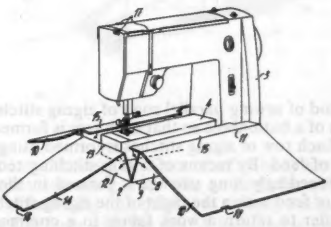
A blade or wire, mounted underneath the cover for the guard ring and in the path of the underthread on its way to the needle, is so shaped that when the sewer pulls the underthread tight, while threading the machine preparatory to sewing, it is caused to move under the tension skid automatically.

3,570,430
SEWING MACHINE
Marcel Fresard, Petit-Lancy, Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland
Filed Mar. 10, 1969, Ser. No. 805,490
Claims priority, application Switzerland, Apr. 5, 1968, 5110/68
Int. Cl. D056 *75/00*
U.S. Cl. 112—258 **3 Claims**



A sewing machine accessory is provided with two side flaps and a front flap and also has a flat top surface which cooperates with the upper face of the free lower arm of the sewing machine when the accessory is slipped thereon, to thereby provide an enlarged work surface. The flaps can be raised to enclose the machine when it is not in use.

3,570,431
SEWING MACHINE
Marcel Fresard, Petit-Lancy, Switzerland, assignor to Mefina S. A., Fribourg, Switzerland
Filed Mar. 10, 1969, Ser. No. 805,504
Claims priority, application Switzerland, Apr. 5, 1968, 5,111/68
Int. Cl. D05b *75/00, 73/10*
U.S. Cl. 112—258 **17 Claims**

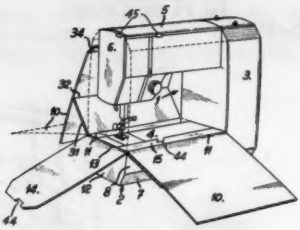


Two wing members that enlarge the upper face of the free lower arm of the sewing machine can be swung out of the way, along with any auxiliary parts enclosing said arm, to expose the arm for sewing tubular pieces.

3,570,432
SEWING MACHINE
Marcel Fresard, Petit-Lancy, Geneva, Switzerland, assignor to Mefina S. A., Fribourg, Switzerland
Filed Apr. 15, 1969, Ser. No. 816,292
Claims priority, application Switzerland, May 3, 1968, 6,605/68
Int. Cl. D05b *75/00*
U.S. Cl. 112—258 **2 Claims**

A free-arm type sewing machine is provided with a pair of side flaps and an end flap which are pivotally connected to a troughlike member integral with the sewing machine base and spaced from the free lower arm. In their uppermost posi-

tion the flaps are retained against the head and upper arm of the machine to form an enclosure for the head and sides of the upper arm. The two side flaps are free to slide and pivot in a hinge arrangement so that they can be lowered and their

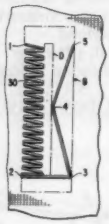


upper angularly bent edges can either be placed adjacent the side edges of the free lower arm to form an enlarged work surface or be pulled away from the arm to expose the latter for the sewing of tubular pieces.

3,570,433
METHOD OF SEWING PARALLEL ROWS OF ZIG-ZAG STITCHES

William Weisz, Rockaway, and Charles R. Odermann, Montville, N.J., assignors to The Singer Company, New York, N.Y.

Filed Mar. 26, 1969, Ser. No. 810,590
Int. Cl. D05b *3/06*
U.S. Cl. 112—264 **2 Claims**



A method of sewing parallel rows of zigzag stitches for the formation of a buttonhole so that each row is formed in a like manner. Each row of zigzag stitches is formed using the same direction of feed. By means of a skip-stitching technique, a line of exceedingly long stitches is formed in the opposite direction of feed within the bight of the zigzag stitches of one row in order to return a work fabric to a common starting point for the formation of the rows. The process may start with a line of stitches formed in the opposite direction of feed in order to position the work fabric at the common starting point so that the rows are uniform, each having zigzag stitches which overlie the line of stitches formed in the opposite direction of feed.

3,570,434
ZIP FASTENER

Pertti O. Gustavsson, Bogesundsgatan 6, Boras, Sweden

Filed June 4, 1968, Ser. No. 734,262
Claims priority, application Germany and Sweden, Sept. 6, 1967, June 5, 1967, p. 42,946; 7,840
Int. Cl. D05b *3/12, 97/10*
U.S. Cl. 112—265 **4 Claims**

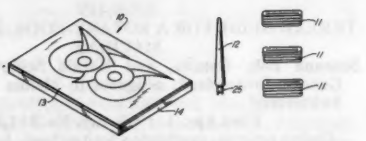
A method of simultaneously sewing two halves of a sliding clasp fastener forming part of a continuous fastener tape, with the fastener-coupling members on each half in engagement with each other, to a support such as the top material of a garment. The fastener tape with the desired length of both halves sewn onto the support is severed in a part that is provisionally left disconnected from the support, and in that the tape is provided simultaneously with a connection to join

together the interengaging coupling members on the two halves in the region of the severing. The invention is also directed to an apparatus for carrying out the method.

3,570,435
METHOD OF MAKING DECORATIVE ARTICLES EMPLOYING YARN OR THE LIKE

John R. Morrison, 350 E. 52nd St., New York, N.Y.

Filed Dec. 10, 1969, Ser. No. 883,735
Int. Cl. D05c *15/00*
U.S. Cl. 112—266 **10 Claims**



A base is provided having a pierceable elastic surface and a penetrable yieldable interior. The surface is provided with pattern areas defined by demarcations, which may be surface cuts. The free end of a yarn strand is pushed into the base at a point on one demarcation, and the yarn is severed at a point spaced from the embedded end to create a cut yarn strand. The other end of the cut strand is then pushed into the base at a point on another demarcation spaced from the first. These steps are repeated with additional strands placed adjacent to each other, to cover the various pattern areas. The surface may bear indicia indicating the color of yarn to be used and the direction in which the strands are to be placed.

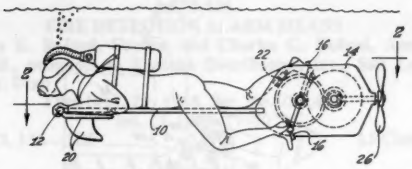
3,570,436
SUBMERSIBLE WATER BICYCLE

Craig Le Vasseur, 8924 Earhart Ave., Los Angeles, Calif.

Filed Apr. 28, 1969, Ser. No. 819,799
Int. Cl. B63g *8/00;* **B63h** *16/12*
U.S. Cl. 114—16 **4 Claims**

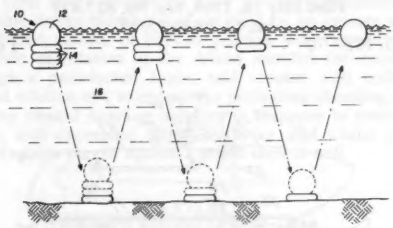
A submersible water bicycle is provided for use by scuba divers, and others, so that they may propel themselves easily and comfortably beneath the surface of the water at any desired depth. The vehicle includes an inertial wheel which

may be brought up to speed to provide a measure of momentum to the vehicle and a gyroscope effect to maintain the



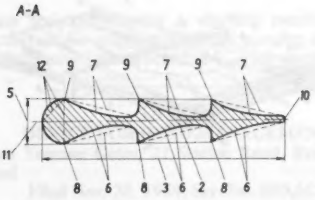
vehicle in a desired angular position with respect to its longitudinal axis.

3,570,437
MULTI-CYCLE OCEAN DATA GATHERING SYSTEM
Paul D. Davis, Jr., Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Feb. 11, 1969, Ser. No. 798,355
Int. Cl. B63g 9/00; B63b 21/52
U.S. Cl. 114—16 **2 Claims**



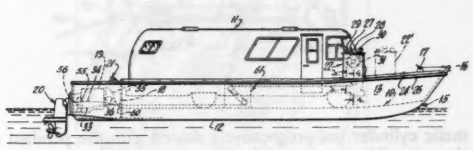
A system for repetitively submerging and surfacing an ocean data gathering instrument package. The system includes a number of vessels each large enough to contain sufficient water to sink the instrument package and the remaining vessels. The package is submerged by flooding one of the vessels and is surfaced by detaching the flooded vessel from the package and the remaining vessels. The package may be submerged as many times as there are vessels in the system.

3,570,438
PROFILED STABILIZING FIN FOR A SHIP
Damian Mackowiak, Biala 3B/18, Gdansk, Poland
Filed Oct. 14, 1968, Ser. No. 767,351
Claims priority, application Poland, Oct. 25, 1967, P123.218
Int. Cl. B63b 39/06
U.S. Cl. 114—126 **9 Claims**



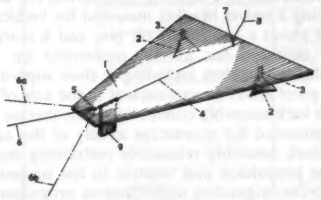
A ship with stabilizing fins either laterally extending or forming the bilge keel, which fins are fixed and which have thin leading edges, an upper surface that is concave, and a lower surface that diverges from the upper surface.

3,570,439
NAVIGATION CONTROL MECHANISM
Charles D. Snelling, 2949 Greenleaf Ave., Allentown, Pa.
Filed Dec. 26, 1968, Ser. No. 787,068
Int. Cl. B63h 21/26
U.S. Cl. 114—146 **22 Claims**



The invention contemplates a navigable vessel with means for accommodating one of a variety of types of wheeled vehicle. The vessel has provision for its own navigation from a control console or housing which is selectively positionable alongside the vehicle, for best adaptation to the particular vehicle. The nature and placement of the control console is to enable convenient navigation control, from a protected position within the vehicle or from a position outside the vehicle, as dictated by operator preference. The arrangement is such that no control readjustment is necessary, in the adaptation of the vessel to vehicles of different sizes and shapes and to various operator preferences as to mode of operation.

3,570,440
MARINE ANCHOR
Hendrik Pot, Kinderdijk, Netherlands, assignor to N. V. Industrieele, Handelscombinatie, Netherlands
Filed Feb. 24, 1969, Ser. No. 801,727
Claims priority, application Netherlands, Feb. 26, 1968, 6,802,686
Int. Cl. B63b 21/30
U.S. Cl. 114—206 **6 Claims**

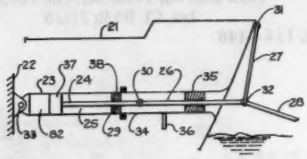


A marine anchor is in the form of a flat body having plow-shaped flukes extending from one or both flat sides of the anchor. The flukes dig into the soil to a depth limited by contact of the flat body with the soil. A leeboard is disposed on the same side of the body as the flukes.

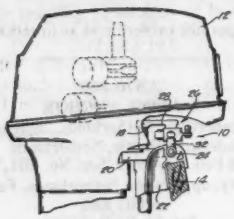
3,570,441
MARINE TOWLINE SHOCK ABSORBER
Norman A. Johnson, Delta, British Columbia, and Leonard D. Hengeveld, Richmond, British Columbia, Canada, assignors to Pneuveyco Equipment Ltd., Vancouver, British Columbia, Canada
Filed June 2, 1969, Ser. No. 849,534
Claims priority, application Great Britain, June 13, 1968, 28103/68
Int. Cl. B63b 21/24
U.S. Cl. 114—235 **12 Claims**

An apparatus for use at the tow end of a marine towline and adapted to absorb shock loads and damp travelling waves in said towline. A marine towline is attached to an element which is restrained by a pendant attached to a tow and by a flexible tension member attached to an extensible member of a pneumatic cylinder, another member of which cylinder is attached to the tow. The geometric relationship of

the pendant and flexible tension member is such that a shock load in the towline is initially borne substantially by the pneumatic cylinder but progressively shared with the pendant as the extensible member of the pneumatic cylinder extends.



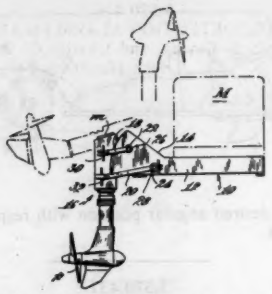
3,570,442
NO BACK STEERING
William J. Shimanckas, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed May 19, 1969, Ser. No. 825,716
Int. Cl. B63h *21/26*
U.S. Cl. 115—18 **11 Claims**



Disclosed herein is a steering mechanism for an outboard motor having a swivel bracket mounted for vertical swinging movement about a horizontal tilt pin, and a marine propulsion unit mounted for pivotal movement on the swivel bracket, the mechanism including a slide support rod connected to pivot about an axis normal to the axis of the tilt pin and a slide lock assembly connected to the marine propulsion unit and mounted for movement axially of the support rod, the slide lock assembly releasably restraining movement of the marine propulsion unit relative to the support rod from steering forces originating in the marine propulsion unit. The slide lock assembly includes a pivot pin mounted for movement axially of the support rod, a pair of levers having apertures slightly larger than the support rod, which levers are biased in angularly disposed relation on the support rod to respectively provide unidirectional restraint in opposite directions to the movement of the pivot pin with respect to the support rod and a slide block connected to a steering control member and mounted to slide on the support rod to selectively release the levers in response to steering movements originating from the steering control member.

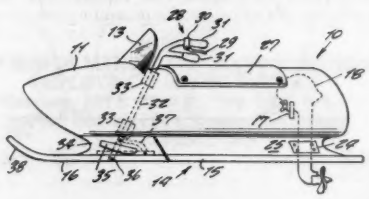
3,570,443
OUTBOARD MOTOR SUPPORT
Peter Kitson Dewhurst, Weymouth, Mass., assignor to Mathewson Corporation, Quincy, Mass.
Filed Mar. 18, 1969, Ser. No. 808,264
Int. Cl. B63h *5/12*
U.S. Cl. 115—41 **15 Claims**

An outboard marine propulsion unit embodying a console adapted to be fastened to a vessel at the stern having spaced parallel arms extending therefrom over the transom for supporting a drive assembly, comprising a propeller and means for effecting rotation thereof, with the propeller submerged in water for rotation about a horizontal axis, and linkage mounting the assembly between the arms for linear and arcuate movement to raise the propeller substantially vertically upward a distance corresponding substantially to its radius and thereafter to swing it along an arc to an inverted position



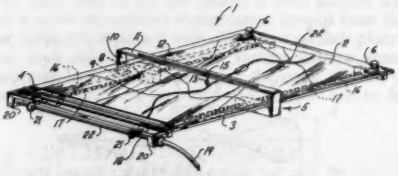
in which it extends substantially vertically upward from the vessel.

3,570,444
MOTORSKI
Robert L. Farr, 142 Center St., East Peoria, Ill.
Filed May 16, 1969, Ser. No. 827,477
Int. Cl. B63b *35/00*
U.S. Cl. 115—70 **1 Claim**



A craft for travel upon a water surface, the craft comprising a hull with a cockpit for carrying passengers, the hull carrying an outboard motor at its rear end, and the hull being mounted upon a single front ski and a single rear ski in longitudinal alignment with each other, the front ski being able to be steered manually.

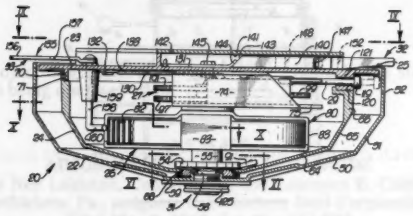
3,570,445
MAP TRACKER
Richard E. Johnson, 24 West Broad, Paulsboro, N.J.
Filed Feb. 26, 1969, Ser. No. 802,449
Int. Cl. B11g *3/00*
U.S. Cl. 116—29 **10 Claims**



Means to approximately automatically track on a map, the course and position of a vehicle. Motion reducing means connected to the vehicle move a pointer forward at a rate proportional to the speed of the vehicle. The pointer has a degree of freedom for additional motion. A map is positioned beneath the pointer and has a desired route marked with a material to magnetically interact with the pointer so that the

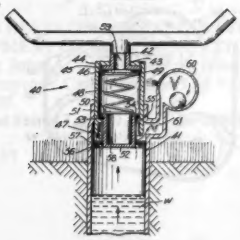
pointer always remains in contact with the route and follows it by moving through the additional degree of freedom.

3,570,446
FIRE DETECTION ALARM MEANS
Wesley E. Buford, Covina, and Charles G. Buford, Azusa, Calif., assignors to Emdeko Distributing, Inc., Salt Lake City, Utah
Filed Sept. 23, 1968, Ser. No. 761,433
Int. Cl. G08b *17/00*
U.S. Cl. 116—102 **15 Claims**



A fire detection alarm means in which one or more hammers (and speed governors) have pivotal connections to a rotatable driven member and are held by an arcuate wall in backfolded, coiled, or cocked position with respect to the direction of rotation of the driven member for movement through a preselected angle, said arcuate wall ending in spaced relation to a sound pin for permitting uncoiling or uncocking of said hammer member in response to centrifugal forces with increased speed to strike said sound pin to forcibly drive the pin against a sound shell or bell.

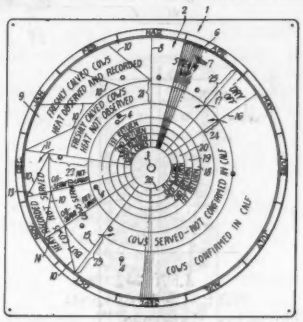
3,570,447
LAWN SPRINKLER ALARM
Mark T. Basseches, Pleasantville, and Paula T. Basseches, Scarsdale, N.Y. Said Paula T. Basseches, assignor to Robert T. Basseches, Chevy Chase, Md.
Filed Nov. 8, 1968, Ser. No. 774,248
Int. Cl. G08b *21/00*
U.S. Cl. 116—112 **11 Claims**



A lawn sprinkler having a warning mechanism incorporated therein for emitting a telltale warning signal responsive to admission of water pressure into the apparatus.

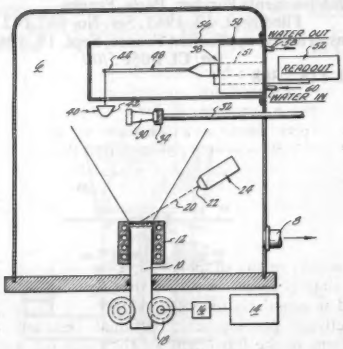
3,570,448
DEVICE FOR HERD MANAGEMENT
Robin Ian Yeoman Gates, 22 Station Road, Redhill, Surrey, England
Filed Nov. 28, 1969, Ser. No. 880,562
Claims priority, application Great Britain, Nov. 29, 1968, 56760/68
Int. Cl. G09f *9/00*
U.S. Cl. 116—133 **3 Claims**

A device for herd management, particularly herds of cows, which records the offspring producing cycle, comprising a board and a transparent disc mounted at its center for rotation over one face of the board, the board having markings thereon representing observations and steps to be taken with an animal, these markings being arranged coordinate with



markings on the disc representing days and months of the year; and marker members for attachment to the disc representing an animal.

3,570,449
SENSOR SYSTEM FOR A VACUUM DEPOSITION APPARATUS
Sol S. Blecherman, Newington; Mitchell J. Bala, Hazardville; Robert B. Lougee, Windsor, and Johannes Grafwallner, South Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 13, 1969, Ser. No. 806,951
Int. Cl. C23c *13/08*
U.S. Cl. 118—9 **10 Claims**

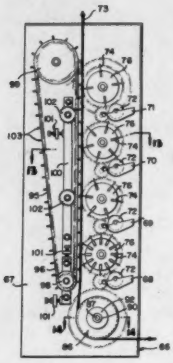


Apparatus for accurately determining, continuously, the coating thickness deposited on an article during a vapor deposition process. The apparatus utilizes a unique pickup plate and strain-gauged cantilever beam positioned within the vacuum chamber to continuously record the coating thickness deposited on the article.

3,570,450
MACHINE FOR CIRCUMFERENTIAL COLOR CODING
Chester J. Geating, 1102 E. Joppa Road, Towson, Md.
Original application Dec. 9, 1968, Ser. No. 782,025, now Patent No. 3,509,850, dated May 5, 1970, which is a division of application Ser. No. 579,026, Sept. 13, 1966, now Patent No. 3,434,456, dated Mar. 25, 1969. Divided and this application Dec. 10, 1969, Ser. No. 883,873
Int. Cl. B05c *1/14*
U.S. Cl. 118—221 **2 Claims**

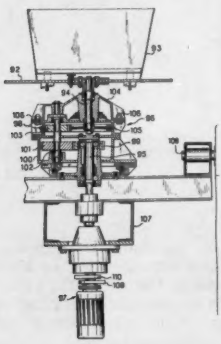
A machine for color coding moving strands which includes plural inkers each having plural inking areas arranged on a

circular path on an inker, and having means driven by pulling on the strand for rotating the inkers, each inker being provided with a stationary ink supply into which the inking areas dip and the strand normally moving in a path slightly dispersed from the inking areas, means for actuating the



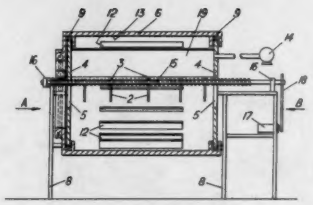
strand into contact with the inking areas, the latter means comprising moving teeth which are synchronized with movement of the many areas and are so located that they never contact an inked area of the strand during passage of the strand through the machine.

3,570,451
ENAMELING APPARATUS
Robert Le Heron, Neuilly sur Seine; Harold Le Heron; Claude Saltel, and Frederic Lebouchard, Revin, France, assignors to Etablissements Porcher, Paris, France
Filed Sept. 12, 1967, Ser. No. 667,142
Claims priority, application France, Sept. 19, 1966, 76,856
Int. Cl. B05c *5/00*
U.S. Cl. 118—308 **15 Claims**



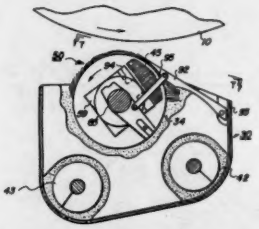
A method and apparatus for enameling metallic products such as cast iron bathtubs wherein the product to be enameled is mechanically conveyed to a preheating tunnel furnace where it remains sufficiently to reach a desired temperature. Then the product is automatically conveyed to a dredging station and oscillated during which enamel is mechanically distributed on the entire product from a dredging element which moves relative to the movement of the product. After application of the enamel, the product is conveyed to an enamel firing furnace and finally it is conveyed to a cooling station.

3,570,452
DRYING PASTED BATTERY PLATES
Eric Goodwin, Hyde, England, assignor to Oldham & Son Limited, Denton, Manchester, England
Filed May 13, 1968, Ser. No. 728,459
Claims priority, application Great Britain, May 31, 1967, 25031/67
Int. Cl. B05c *5/00*
U.S. Cl. 118—309 **8 Claims**



Pasted battery plates are dried by suspending them from conveyor means by which they are moved through a rotatable cylinder having vanes projecting from the interior thereof and which create in the cylinder a dust cloud of dry powder, the plates being moved through the cloud so that dust settles evenly on the surfaces of the plates.

3,570,453
DEVELOPMENT APPARATUS
Larry W. Nuzum, Columbus, Ohio, assignor to Xerox Corporation, Rochester, N.Y.
Filed Aug. 7, 1968, Ser. No. 750,852
Int. Cl. B05b *5/02*
U.S. Cl. 118—637 **5 Claims**

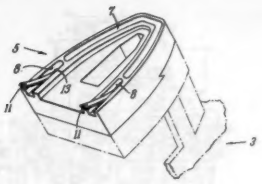


Apparatus to control the stopping and starting function of a magnetic brush developing system in which the magnetic brush is rapidly brought in and out of operative contact with an image bearing photoconductive surface.

3,570,454
ADHESIVE APPLYING DEVICE
George C. Barton, Leicester, England, assignor to USM Corporation, Flemington, N.J.
Filed May 6, 1969, Ser. No. 822,255
Claims priority, application Great Britain, May 10, 1968, 22176/68
Int. Cl. B05c *3/02*
U.S. Cl. 118—411 **4 Claims**

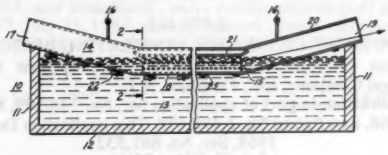
A device for applying adhesive to a shoe bottom through a groove closed at one end by a member biased out of the

groove and depressible by engagement with the shoe bottom



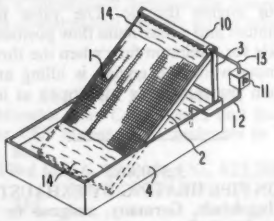
to adjust the length of the groove according to the size of shoe being operated upon.

3,570,455
ADJUSTABLE COATING BATH GUIDE
John Neil Laidman, Coopersburg, and Laurence B. Caldwell, Bethlehem, Pa., assignors to Bethlehem Steel Corporation
Filed May 8, 1969, Ser. No. 823,093
Int. Cl. B05c *3/02*
U.S. Cl. 118—428 **3 Claims**



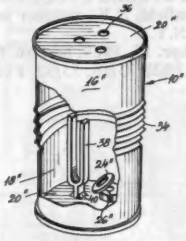
Adjustable apparatus to be partially immersed in a container holding a molten metal bath for guiding metallic members to be coated. The apparatus includes means to adjust its width to accommodate members which are passed through the bath in runs or groups having different widths or cross sections.

3,570,456
LIQUID DEVELOPMENT APPARATUS FOR DEVELOPMENT OF ELECTROSTATIC IMAGES
Guy A. Marlor; John A. Dahlquist, Palo Alto, and Eugene F. Cirimele, Sunnyvale, Calif., assignors to Varian Associates, Palo Alto, Calif.
Filed Feb. 11, 1969, Ser. No. 798,304
Int. Cl. B05b *5/00*
U.S. Cl. 118—637 **4 Claims**



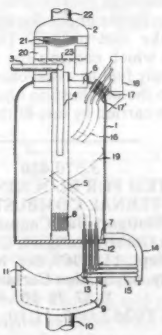
An inclined fine mesh screen of conductive material, in combination with a reservoir or liquid medium having toner therein, supports a body bearing an electrostatic latent image to be developed. Means dispense the toner charged liquid across the upper portion of the inclined screen.

3,570,457
DOG TRAINING DEVICE
Nancy L. Curtis, 10 Park Ave., New York, N.Y.
Filed July 7, 1969, Ser. No. 839,611
Int. Cl. A01k *15/00*
U.S. Cl. 119—29 **4 Claims**



A sound emitting device for correcting behavior in dogs such as anxiety, intracability, coprophagy and the like. The device consists of a hollow cylindrical metal can with loose metal articles inside the can adapted to strike against the side and end walls of the can when the can is dropped or thrown on the floor and the like, close to where the dog is located. In a modification of the invention, the loose metal articles also strike a tuning fork mounted on the inner surface of one end wall of the can.

3,570,458
HEAT EXCHANGER CONSTRUCTION
Takehiko Sato, Yokkaichi; Takao Kondo, Tokyo; Toshiji Omori; Hisao Ito, Kobe, and Masaru Terao, Osaka, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan and Mitsubishi Petrochemical Company Limited, Tokyo, Japan
Filed May 9, 1969, Ser. No. 823,431
Claims priority, application Japan, May 25, 1968, 43/35370
Int. Cl. F22b *1/02*; **F28f** *13/00*
U.S. Cl. 122—34 **13 Claims**



A heat exchanger such as a boiler comprises a liquid section having a wall with a plurality of sleeve pipes extending therethrough. The fire tubes for conducting high-temperature gases extend through the respective sleeve pipes and upwardly in the liquid section without being directly coupled to the wall of the liquid section. The fire tubes extend in the form of a gentle curve such as a spiral through the liquid section and extend outwardly through an upper wall of the liquid section through respective additional sleeve elements and connect at their upper ends into an outlet gas chamber. Liquid is circulated by natural circulation from the liquid section through an exterior duct to the hollow sleeve elements and around the fire tubes and back upwardly into the liquid section. The gently curved form of the fire tubes inside

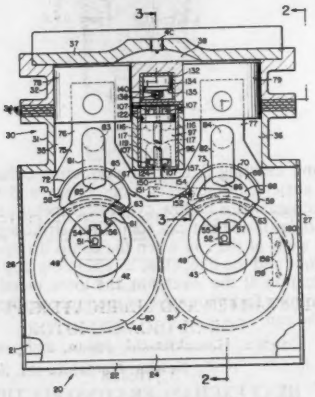
the liquid section and their free mounting at their passage through the sleeve elements provides a construction which is capable of withstanding the high thermal stresses which are present in such boilers.

3,570,459

TWO-STROKE CYCLE ENGINE

Van P. Combs, Penfield, N.Y., assignor to Bristol Associates, Inc., Rochester, N.Y.

Filed Apr. 17, 1969, Ser. No. 817,014
Int. Cl. F02b *75/18, 75/32;* **F16h** *21/18*
U.S. Cl. 123—52 **17 Claims**



This engine has two crankshafts geared to one another to rotate in opposite directions about parallel axes, and two pistons, which reciprocate side-by-side in two cylinder bores that communicate with a common combustion chamber. The pistons are carried by a double yoke, which is connected by two rocker arms to two crankpins that are carried by flywheels coaxial with the crankshafts. Each pin is surrounded by an annular land that is integral with the associated flywheel. Each land passes through an arcuate recess in the associated rocker arm to guide the arm for limited pivotal movement about the crankpin during reciprocation of the yoke and pistons. The yoke carries a supercharger piston which controls the opening and closing of reed valves to supply fuel to a fuel chamber, which is periodically connected to the combustion chamber by a valve that is operated by a cam carried by one of the flywheels.

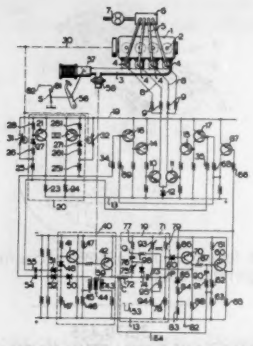
3,570,460

CONTROL SYSTEM FOR BLOCKING FUEL INJECTION IN AN INTERNAL COMBUSTION ENGINE

Friedrich Rabus, Stuttgart-Bad Cannstatt, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Sept. 11, 1969, Ser. No. 856,997
Claims priority, application Germany, Sept. 21, 1968, P 17 76 103.4
Int. Cl. F02d *33/00, 11/10;* **F02b** *49/00*
U.S. Cl. 123—97 **14 Claims**

Opening pulses for fuel injectors are furnished by a multivibrator. The pulses are applied to a resistance-capacitance network which furnishes a negative pulse having an amplitude which varies with the speed and the temperature of the engine. This signal is applied to the base of a switching transistor whose bias is controlled by the accelerator pedal. The collector of the switching transistor is connected to the base of an auxiliary transistor, whose collector is connected by means of a feedback resistance to the base of the switching resistor. The opening pulse is also applied to the base of the auxiliary transistor by means of a series resistance-capacitance circuit. Blocking of the auxiliary transistor causes transmission of the opening pulse to the injector. The auxiliary transistor blocks only upon simultaneous conduction of the multivibrator furnishing the opening pulse and the switching transistor. The circuit is arranged to block the transmission of the opening pulses in case of speeds



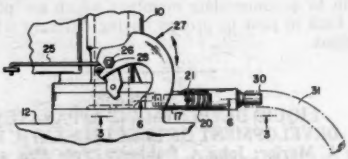
exceeding the idling speed while the accelerometer pedal is not depressed.

3,570,461

POSITIVE CRANKCASE VENTILATING DEVICES

Vincent Guarnaschelli, Greenlawn, N.Y., assignor to The Nycal Company, Inc., Carlstadt, N.J.

Continuation-in-part of application Ser. No. 726,109, May 2, 1968, now Patent No. 3,495,578. This application Dec. 2, 1969, Ser. No. 881,532
Int. Cl. F02m *25/06*
U.S. Cl. 123—119 **15 Claims**



Connected into the downdraft side of the carburetor at one end and adapted to be connected via a conduit into the crankcase at the other end, an adjustable flow control valve is cam operated by the accelerator pedal linkage or mechanism which controls the degree of opening of the butterfly valve, or engine throttle. The valve has a range between a minimum and a maximum flow positions and is adjusted to provide for minimum flow when the throttle is at its minimum opening while the engine is idling and for maximum flow when the throttle is wide open at its maximum position.

3,570,462

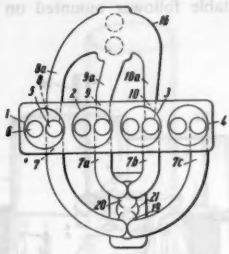
SUCTION PIPE HEATING BY EXHAUST GAS

Franz Hauk, Ingolstadt, Germany, assignor to Auto Union G.m.b.H., Ingolstadt, Germany

Filed May 6, 1968, Ser. No. 726,976
Claims priority, application Germany, May 17, 1967, P 15 76 445.1
Int. Cl. F02m *31/00*
U.S. Cl. 123—122 **1 Claim**

In a four-cylinder combustion engine, the heating of the suction pipe by exhaust gas is carried out by a device wherein

a separate branch conduit is branched off from the exhaust

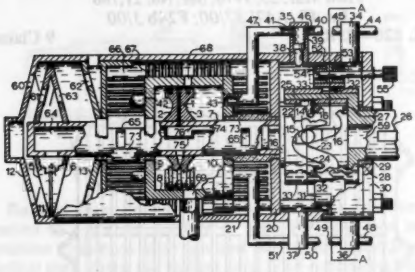


piping of three cylinders and opens into a preheating conduit having a common wall with the suction pipe.

3,570,463
REGENERATIVE COMBUSTION CYCLE PISTON ENGINE

Daniel E. Nelson, Box 576, Pacific Grove, Calif.

Continuation-in-part of application Ser. No. 437,682, Mar. 8, 1965, now abandoned , and a continuation-in-part of 656,437, July 27, 1967, now abandoned , and a continuation-in-part of 684,377, Nov. 20, 1967, now abandoned. This application Jan. 12, 1970, Ser. No. 870,644
Int. Cl. F02m *31/00;* **F02b** *75/20, 33/10*
U.S. Cl. 123—122D **11 Claims**



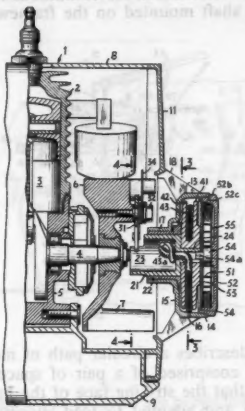
This is a regenerative combustion cycle piston engine with a heat exchange chamber at the outside of a power cylinder, a compressor, a conveyance between the compressor and the heat exchange chamber and a rotary power takeoff.

3,570,464
STARTER MECHANISM

Vincent D. Morabit, Cos Cob, Conn., and Robert D. Olmstead, Briar Cliff Manor, N.Y., assignors to Textron, Inc., Providence, R.I.

Filed May 6, 1969, Ser. No. 822,208
Int. Cl. F02n *1/00*
U.S. Cl. 123—185 **9 Claims**

A rewind starter for an internal combustion engine having a combined flywheel and fan on one end of the crankshaft comprises a cup coaxial with the crankshaft rotatably supported in a bearing provided in a starter housing having a ring of openings to admit air to the flywheel. Pawls on the flywheel are releasably engageable with shoulders on the cup to couple the cup with the crankshaft. A starter pulley fixed on the outer end of the cup is received in a recess in the starter housing closed by a dished cover holding a rewind

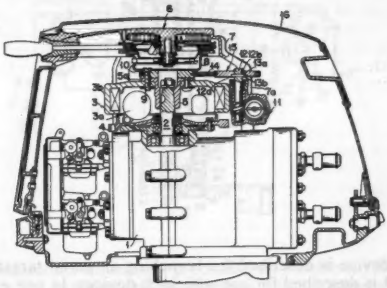


spring having its outer end secured to the cover and its inner end secured to an arbor rotatable with the cup and pulley.

3,570,465
RECOIL STARTER AND LUBRICATING PUMP DRIVE FOR OUTBOARD MOTOR

Yutaka Masaoka, Hamakita-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Shizuoka-Ken, Japan

Filed Sept. 16, 1969, Ser. No. 858,286
Claims priority, application Japan, Sept. 19, 1968, 42/80979
Int. Cl. F02n *3/02;* **F01m** *1/02, 3/00*
U.S. Cl. 123—185 **3 Claims**



An outboard motor wherein the fitting arrangement of a lubricating pump for lubricating an internal combustion engine is so designed as to be simple and compact, and a transmission gear mechanism for allowing said pump to be driven by the power of an engine is saved from the deposition of water drops or water scales by said arrangement.

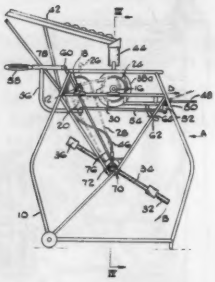
3,570,466
APPARATUS FOR EJECTING BALLS

Brian G. C. White; Derek W. Schroeder, Johannesburg; and Donald C. Logan, Randburg, Republic of South Africa, assignors to said Schroeder and said Logan assignors to said White

Filed Aug. 15, 1968, Ser. No. 752,926
Claims priority, application, Republic of South Africa, Aug. 17, 1967,
67/4954
Int. Cl. F41b *15/00*
U.S. Cl. 124—1 **6 Claims**

A sports apparatus for ejecting balls, such as tennis, cricket, baseball and similar balls, to provide a service of

balls for training practice or for playing a game. The apparatus comprises a framework, a hammer with a striking face and which is mounted for continuous rotational movement about a shaft mounted on the framework so that the

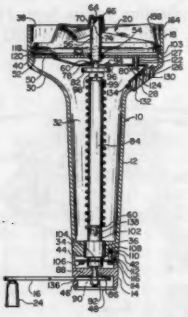


striking face describes a circular path of movement, and a feeder device comprised of a pair of spaced feeder plates positioned so that the striking face of the hammer will pass between them and adapted to feed successive balls to be positioned in the path of movement of the striking face.

3,570,467
BIRD LAUNCHER

Paul Belokin, Jr., Berwyn, Ill., assignor to Woodstream Corporation, Lititz, Pa.

Filed June 16, 1967, Ser. No. 646,648
Int. Cl. F41b *15/00*
U.S. Cl. 124—26 **4 Claims**



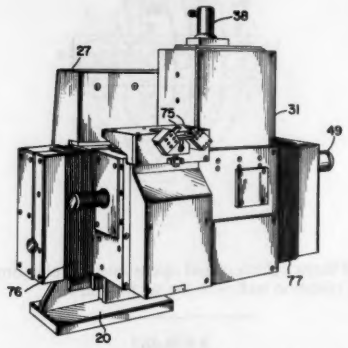
A device is described for launching an aerial target and a target is described for use with such devices. In one embodiment a manually operated mechanical launcher is described having a spring-actuated rotary shaft with means for axially engaging the recessed hub of a target which upon release causes the target to carry itself into the air in a manner peculiarly adapted to target practice and related sports. Both the launcher and target have cooperating concentric cowling walls which allow the target to become airborne with the proper orientation and forward speed for target practice. In one embodiment the target is designed with radial balanced fins or blades joined to a recessed hub within a ring housing and being radially offset from both the hub and housing. Other embodiments are disclosed.

3,570,468
APPARATUS FOR FORMING CONTOURS

Nils Hoglund, Short Hills, N.J., assignor to Hoglund Engineering and Manufacturing Company, Inc., Berkeley Heights, N.J.

Filed May 15, 1969, Ser. No. 824,779
Int. Cl. B24b *53/00*
U.S. Cl. 125—11 **6 Claims**

The apparatus, intended for forming contours on or dressing surfaces of grinding wheels, includes a base supporting an adjustable slide guide upon which the main housing is slidably supported on an elongated slide guide fixed at its ends to the adjustable slide guide. Slidably mounted in the housing is a main slide carrying on one side thereof a removably mounted feed cam and a contour cam, both elongated. An adjustable follower mounted on the adjustable

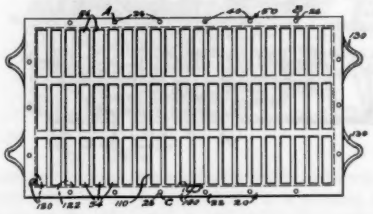


slide guide engages the feed cam. A ratio cam slide has a follower engaging the contour cam and has mounted thereon a ratio cam. A tool slide is mounted in the housing and has a follower engaging the ratio cam. The ratio cam slide is easily removable from the housing to permit quick interchange of ratio cams. Biasing springs maintain the cams and followers in contact.

3,570,469
BARBECUE GRILL WITH DISPOSABLE TOP

Denton H. Jones, 3504 S. 100th Ave., Omaha, Nebr.

Filed Mar. 23, 1970, Ser. No. 21,786
Int. Cl. A47j *37/00;* **F24b** *3/00*
U.S. Cl. 126—25R **9 Claims**



A barbecue grill having a fire holder, a grill top, anchoring means disposed in anchoring engagement with the grill top, the grill top having a central meat-receiving portion which is unsupported by means other than the edge portions of the grill top itself.

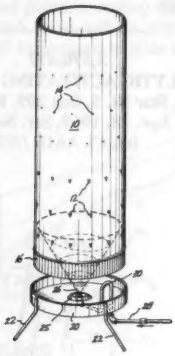
3,570,470
SPACE HEATER

Franklin D. Milum, Granger, Wash. (Rte. 2, Box 145, Prosser, Wash. 99350)

Filed Apr. 28, 1969, Ser. No. 819,823
Int. Cl. A01g *13/06*
U.S. Cl. 126—59.5 **3 Claims**

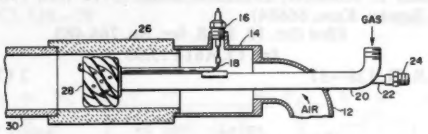
A space heater having an upright tubular combustion chamber has a pan closing the bottom of the chamber and provided with a central fuel atomizing means positioned in an aperture. A conduit delivering fuel to said atomizing means from beneath the pan includes an upstanding loop rising

above said pan within said chamber in close proximity to fuel sprayed from said atomizing means. The aperture surrounds



the fuel atomizing means and is disposed in a plane of the pan bottom.

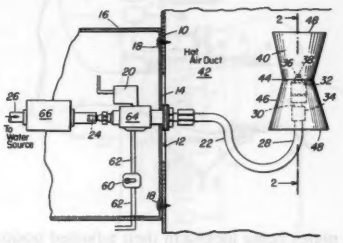
3,570,471
RADIANT TUBE HAVING UNIFORM HIGH-TEMPERATURE DISTRIBUTION
Lazaros J. Lazaridis, Lincoln, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.
Filed Feb. 14, 1969, Ser. No. 799,249
Int. Cl. F24c *3/00*
U.S. Cl. 126—91 **5 Claims**



Radiant tube heating apparatus in which rotation is imparted to a fuel-air mixture in a burner head and in which rotation continues after ignition as the flue gases travel in a helical path down the radiant tube. The continuing rotary action disrupts boundary layers permitting efficient heat transfer from flue gases to radiant tube, and further provides uniform temperature distribution along the tube. The rotation is initiated by helical channels formed in the peripheral surface of the burner head. Air is forced through those channels at high velocity and fuel is fed through the interior of the head and into the channels at right angles through a series of spaced orifices. The resultant complete mixing followed by near-adiabatic combustion create extremely high flame temperatures resulting in high radiant tube temperatures and high heat fluxes and heat release rates.

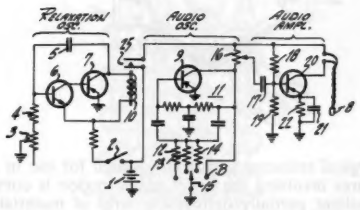
3,570,472
ATOMIZER TYPE HUMIDIFIERS FOR USE IN HEATING PLANTS SUCH AS FURNACES AND THE LIKE
James Santangelo, 365 Sherman St., Passaic, N.J.
Filed Aug. 16, 1968, Ser. No. 753,120
Int. Cl. F24f *3/14*
U.S. Cl. 126—113 **6 Claims**

Dispersing means for improving the mixture of water droplets emanating from atomizer-type humidifiers with the hot air conducted from a heating plant is disclosed. The dispersing means is of a configuration e.g. is a constricted tube, so as to cause turbulence in the hot air stream flowing through the dispersing means and it is into this turbulence



that the atomized water droplets are projected. The resulting improved mixture deters "liming" and dripping in the system.

3,570,473
MANUALLY CONTROLLABLE MEDICAL AID OSCILLATOR INSTRUMENT
Robert L. Konvalin, Hicksville, N.Y., assignor to Cargille Scientific, Inc., Cedar Grove, N.J.
Filed Feb. 28, 1966, Ser. No. 530,542
Int. Cl. A61n *1/36*
U.S. Cl. 128—1 **1 Claim**

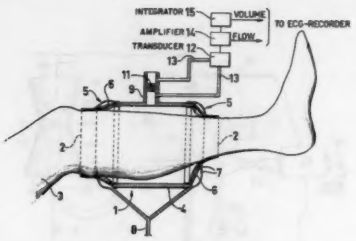


A medical aid instrument producing an audible rhythmical cadence for initiating and sustaining a walking pattern comprising a relaxation oscillator which produces beats in the range of 30 to 120 per minute and has a manual on-off switch under control of the patient. An embodiment of the invention includes a relaxation oscillator, a phase shift oscillator controlled by said relaxation oscillator, and an audio amplifier following the phase shift oscillator. The output of the audio amplifier may be connected to an ear plug or to an electrode assembly adapted to be felt by the patient.

3,570,474
APPARATUS FOR QUANTITATIVE INDICATING OF SMALL AND RAPID VOLUME CHANGES IN A PART OF AN EXTREMITY
Bjorn Lars Herman Jonson, Lomma, Sweden, assignor to Jarnhs Elektriska Aktiebolag, Industrivag, Solna, Sweden
Filed Mar. 27, 1968, Ser. No. 716,640
Claims priority, application Sweden, Mar. 30, 1967, 4345/67
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 **4 Claims**

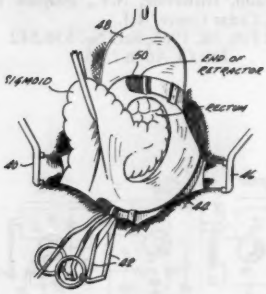
In an apparatus for quantitative indicating of small and rapid volume changes in a part of an extremity there is provided a plethysmograph with a rigid shell and a number of pivoted rigid plates at each end of the shell partially overlapping each other. These plates at each end of the shell are

enclosed in an evacuable casing and are adjustable to be sealingly engaged with the extremity together with said cas-



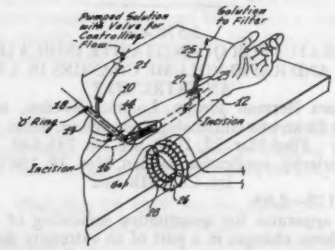
ing, said plates being locked in their adjusted position by the evacuation of said casing.

3,570,475
SURGICAL RETRACTOR
Mandel Weinstein, 30 Deepdene Road, Forrest Hills, N.Y.
Filed Nov. 14, 1968, Ser. No. 775,778
Int. Cl. A61b *1/32, 17/02*
U.S. Cl. 128—20 **5 Claims**



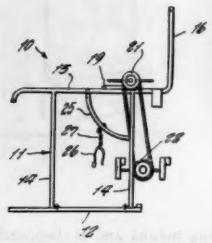
A surgical retractor particularly suited for use in surgical procedures involving the lower pelvic region is constructed of a resilient partially deformable strip of material having rounded edges. The retractor is adapted to be flexed and inserted horizontally into a surgical wound whereby the resiliency of the material serves to retract body portions. In a preferred embodiment, the length of the retractor may be adjustable.

3,570,476
MAGNETOSTRICTIVE MEDICAL INSTRUMENT
David Paul Gregg, 1936 Ketton Ave., Los Angeles, Calif.
Filed Nov. 18, 1968, Ser. No. 776,575
Int. Cl. A61h *1/00;* **A61b** *17/00*
U.S. Cl. 128—24 **9 Claims**



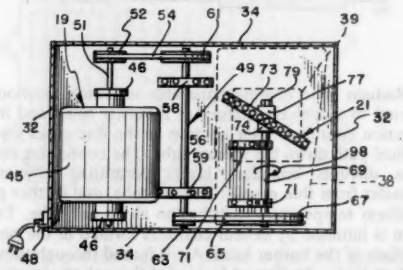
A medical instrument which may be inserted into an artery of a patient, and which includes a magnetostrictive element that serves to remove cholesterol or other fatty deposits from the interior wall of the artery. The term "magnetostrictive" as used herein is intended to embrace the equivalent elements, such as "piezoelectric" and "electrostrictive" in which mechanical vibrations may be set up by the application of electrical energy.

3,570,477
PARALYTIC ACTIVATING MACHINE
John V. Scrivner, Star Rt. 5, Box 209, Rye, Colo.
Filed Apr. 28, 1969, Ser. No. 819,779
Int. Cl. A61h *1/02*
U.S. Cl. 128—25 **3 Claims**



A machine for use by paralytic patients, the machine permitting the patient to do various exercises directly from a wheelchair, the machine including a frame with leg straps to support the patient's knees, the frame carrying a rotatable handcrank driving a footcrank on which the patient places his feet, thus promoting exercise of the leg muscles and joints.

3,570,478
FOOT MASSAGER APPARATUS
Lester L. Schneider, El Dorado, Kans. (3915 West 19th St., Topeka, Kans. 66604)
Filed Oct. 10, 1968, Ser. No. 766,483
Int. Cl. A61h *15/00*
U.S. Cl. 128—57 **2 Claims**



A foot massager apparatus including a massager assembly comprising a support shaft driven by an electric power supply. The support shaft has a massager plate, vertically mounted at approximately a 45° angle to the support shaft. The massager plate carries a plurality of spherical roller assemblies to impart a continuous massaging motion to a foot placed thereagainst.

3,570,479
TRACTION TABLE
Gerald E. Horn, 84 N. Lake St., North East, Pa.
Filed June 3, 1968, Ser. No. 733,956
Int. Cl. A61f *5/00*
U.S. Cl. 128—71 **5 Claims**

The traction table having a stand and a tablelike top with legs on each end. The legs on one end are about the same

length as the height of the stand so that when the table top is horizontal, it rests on the two long legs. In this position, a person can sit on the table top between the stand and the long legs. When the person attaches the foot holders to his feet and reclines on the table, the table top will overbalance and move to an inclined position, resting on its short legs. In this position the person's head will be over the short table legs, and his weight will be inclined to slide his body over the

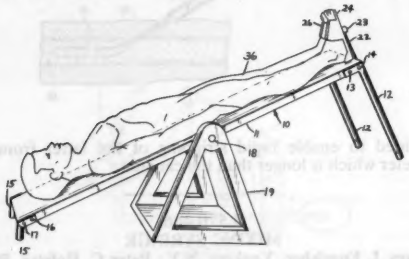
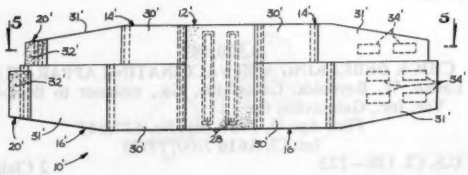


table top toward the head and a tension or traction will thereby be exerted on his body by the foot holders. If the person's head is attached to the traction holder, a maximum tension will be exerted on his neck. If his body is attached to the table at the belt line, a maximum tension will be exerted on the sacroiliac. Prior traction devices depend on weights, winches and other force delivering devices to exert traction on the body.

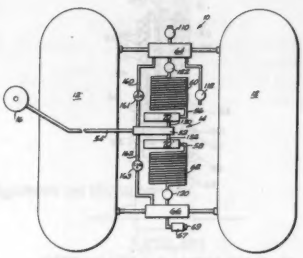
3,570,480
MEDICAL CORSET
Frank F. Stubbs, 14725½ Oxnard St., Van Nuys, Calif.
Filed Oct. 11, 1968, Ser. No. 766,748
Int. Cl. A61f *5/02*
U.S. Cl. 128—78 **4 Claims**



A medical corset to be worn about the waist for supporting the wearer's back and abdominal regions. The corset has a posterior back supporting panel containing metal stays which are bendable to conform to a variety of body back contours, a number of separate elastic, laterally overlapping body bands of different length secured to the longitudinal edges of the panel for encircling the wearer's waist, and fastening means for adjustably joining the bands in front of the wearer's body in such a way as to accommodate application of the corset to a variety of body sizes and shapes.

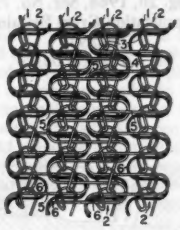
3,570,481
CRYOGENIC UNDERWATER BREATHING APPARATUS
James W. Woodberry, Jr, Titusville, Fla., assignor to Cryogenic Systems, Inc., West Hartford, Conn.
Continuation-in-part of application Ser. No. 641,956, May 29, 1967, now abandoned. This application Oct. 23, 1968, Ser. No. 769,806
Int. Cl. B63c *11/22*
U.S. Cl. 128—142.2 **10 Claims**

Cryogenic underwater breathing apparatus includes a liquid state air storing vessel with outlet ports on antipodal, diametrically opposite ends thereof. Liquid air flows through a selected one of the tank output ports under gravity actuation depending upon the attitude of the tank, with the air being converted to a gaseous state in a heat exchanger and thence flowing to a reservoir and an output demand regulator



for consumption. Regulator control valves are provided to maintain the end air product stored in the reservoir at a predetermined pressure above that of the ambient environmental medium.

3,570,482
ELASTIC SURGICAL BANDAGE
Shigeru Emoto, and Hiroshi Yamamoto, Shizuoka-ken, Japan, assignors to Fujiboseki Kabushiki Kaisha, Tokyo-to, Japan
Filed Dec. 9, 1968, Ser. No. 782,030
Int. Cl. A61f *15/00*
U.S. Cl. 128—156 **10 Claims**

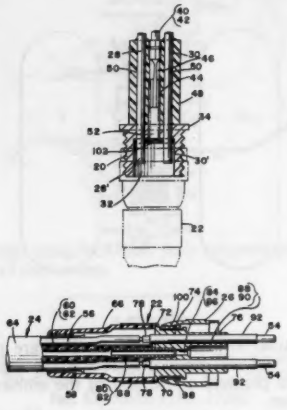


Elastic surgical bandage consisting of chain stitches each formed of nonelastic yarn running reciprocatively across adjoining loops in the chain stitches or across the loops of more than one wale ahead, and polyurethane yarn knitted along the wale, through a portion or all parts of the successive loops in the chain stitch.

3,570,483
DENTAL SYRINGE WITH RELEASABLE HOSE COUPLING
George H. Stram, Hellam, Pa., assignor to Dentsply International Inc., York, Pa.
Filed Oct. 30, 1967, Ser. No. 678,952
Int. Cl. A61c *17/02*
U.S. Cl. 128—173.1 **2 Claims**

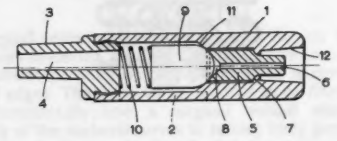
A dental syringe provided with a handle having a coupling end and a discharge head for air, water and a spray mist and an electrical heater in the handle. A flexible hose having a coupling end connectable to the coupling end of the handle to supply air, water and electrical current thereto. Coupling means engages with the coupling ends of the handle and hose operable to quickly connect said hose to said handle and automatically connect the conduits and conductors of said hose correspondingly to those in said handle without any disassembly of the syringe. The male coupling body is made of metal and is attached to the flexible hose and has female

passages for air and water and for two male electrical conductors, which are surrounded by electrical insulation which extends beyond the end of the coupling body. The female coupling body is made of an electrically insulative material



and has male air and water passages and female passages having electrical conductors. When coupled, the insulation around the male electrical conductors extends into the female electrical passages in the female connector.

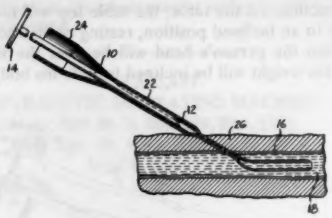
3,570,484
INTRAVENOUS VALVE ASSEMBLY
Peter Leslie Steer, London, and Paul Hex Venn, Eastbourne, England, assignors to Eschmann Bros. & Walsh Limited
Filed Aug. 20, 1968, Ser. No. 754,064
Claims priority, application Great Britain, Aug. 31, 1967, 39,891
Int. Cl. A61m *05/00*
U.S. Cl. 128—214 **2 Claims**



The invention relates to devices for administering intravenous injections of liquids such as drugs, anesthetics or transfusion liquids. The device includes a valve body having a holder for an injection needle. The holder has an outlet passage which communicates with the needle. A nonreturn valve is arranged in the valve body. A valve operating plunger has a portion projecting from the body to enable the valve to be opened by operation of the plunger. The plunger has an inlet passage through which liquid to be injected can pass from a syringe into the valve body and thence pass the nonreturn valve to the outlet passage.

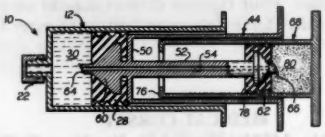
3,570,485
FLEXIBLE CATHETER AND INSERTING APPARATUS
Richard J. Reilly, Deerfield, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.
Filed May 6, 1968, Ser. No. 726,875
Int. Cl. A61m *5/00*
U.S. Cl. 128—214.4 **5 Claims**

A cannula is disposed about a stylet with a sharp forward end for incising the wall of an organ having a lumen for receiving the cannula from which, thereafter, the stylet is removable. The cannula may be collapsible for preventing fluid flow relative to the organ upon stylet removal, and thereafter defines a path, for inserting the catheter into the lumen. A slit extending longitudinally of the cannula may be



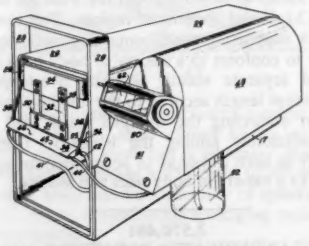
provided to enable rapid stripping of the latter from the catheter which is longer than the cannula.

3,570,486
MIXING SYRINGE
Harvey J. Engelsher, Yonkers, N.Y.; Peter C. Hofstra, Paterson, N.J., and Robert W. McKirdy, Scarsdale, N.Y., assignors to Horizon Industries, Ltd., New York, N.Y.
Filed Oct. 14, 1968, Ser. No. 767,262
Int. Cl. A61m *5/22*
U.S. Cl. 128—218 **10 Claims**



A mixing syringe assembly which maintains the respective constituents of a composition in separate chambers, and which includes a shuttle assembly for interconnecting the chambers for mixing the respective constituents therein prior to use.

3,570,487
CHICK DEBEAKING AND VACCINATING APPARATUS
Lamar W. Reynolds, Gainesville, Ga., assignor to Beak-O-Vac, Inc., Gainesville, Ga.
Filed Apr. 3, 1967, Ser. No. 627,842
Int. Cl. A61d *7/00, 17/38*
U.S. Cl. 128—223 **2 Claims**

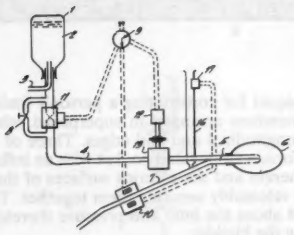


Chick treatment method and apparatus comprising a heated cauterizing element, a hollow beak receiving and support member pivotal into juxtaposition with the cauterizing element, a vaccine source, a pump connected between the vaccine source and the support member for pumping vaccine through the support member into the oral cavity of a chick, support member cooling means, a counter, and switch means responsive to the pivoting of the support member for energizing the pump and counter.

3,570,488
AUTOMATIC APPARATUS FOR URINARY BLADDER IRRIGATION

Mordechai Diskin, Haifa, and Amnon David, Ramat-Gan, Israel, assignors to Technion Research & Development Foundation Limited

Filed May 12, 1969, Ser. No. 823,780
Continuation-in-part of Ser. No. 588,643, Oct. 5, 1966, Pat. No. 3,481,334
Int. Cl. A61m *1/00*
U.S. Cl. 128—230 4 Claims

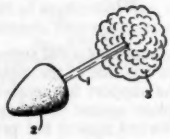


An apparatus for the automatic irrigation of urinary bladders includes a means to cycle the inflation, deflation and flushing of the bladder. The apparatus includes a supply vessel, two flow control valves, a supply tube with a bladder catheter and timing means to control one of the flow control valves. A pump, controlled by the timing means, may also be used.

3,570,489
HYGIENIC GUARDING DEVICE

James Graham Brown, Star Rte 5, Varina, Richmond, Va.

Filed July 29, 1965, Ser. No. 475,759
Int. Cl. A61b *19/00;* A61f *5/44*
U.S. Cl. 128—275 3 Claims



Intended for use as an insert in a lower cavity of the human body to prevent undesired discharge therefrom.

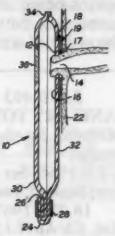
It comprises a stiff but relatively slender stem, to one end of which is permanently secured a plug or head of insoluble material. To the other end of the stem is attached a mass or fluff of soft, fibrous, absorbent material. The stem is sufficiently stiff and strong to serve as an applicator to insert the head or plug up through the anal canal, for example, into the rectum. The stem is of such length that, when the head or plug is thus inserted, the mass or fluff of soft absorbent material will be held snugly against the opening of the anus.

3,570,490
ENTEROSTOMY POUCH

Leon Berger, Merrick, N.Y., assignor to Atlantic Surgical Company, Inc., Merrick, N.Y.

Filed Nov. 15, 1968, Ser. No. 776,181
Int. Cl. A61f *5/44*
U.S. Cl. 128—283 9 Claims

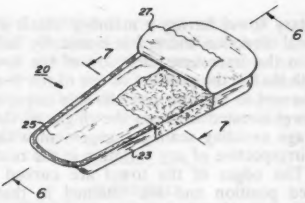
An opaque enterostomy pouch having a transparent window which permits visual access to the stoma-receiving opening in the pouch thereby permitting visual verification of its fit and alignment on the user.



3,570,491
DISPOSABLE SANITARY PAD

Vincent R. Sneider, 3422 Hallcrest Drive N.E., Atlanta, Ga.

Continuation-in-part of application Ser. No. 735,772, June 10, 1968. This application Feb. 16, 1970, Ser. No. 11,388
Int. Cl. A61f *13/16*
U.S. Cl. 128—290 16 Claims

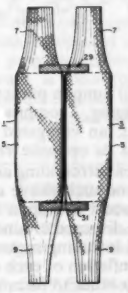


A disposable sanitary pad in which a high absorbency fill member is retained and protected by a thin absorbent cover, both being attached to a thin flexible plastic back member having a thickness of one thousandth to two thousandths of an inch. This plastic back member, on its opposite side, is provided with a nontoxic adhesive surface which, in its shipping and stored condition, is protected by a pullaway cover. The nontoxic adhesive, in its exposed or uncovered condition, is adapted to removably attach the sanitary pad to a portion of a garment such as the crotch of a panty or the like.

3,570,492
SANITARY NAPKIN ASSEMBLY

Joseph Bettencourt, Albany, Calif., assignor to Edward Brosler, a fractional interest

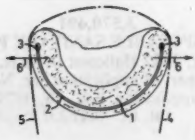
Filed Dec. 23, 1968, Ser. No. 786,047
Int. Cl. A61f *13/16*
U.S. Cl. 128—290 5 Claims



A pair of sanitary napkins of approximately half normal thickness, and each having a body contacting wall and op-

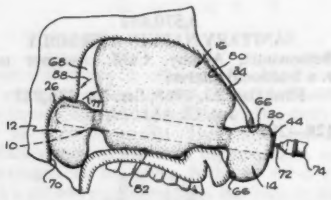
posite flow barrier wall, are assembled in alignment with the body contacting wall of one covering the flow barrier wall of the other, the two napkins being hingedly connected at one side to maintain a connection between the two while permitting a reversal of the order of arrangement thereof.

3,570,493
SANITARY TOWEL
Esko Tapio Olsson, Molndal, Sweden, assignor to Molnlycke AB, Gothenburg, Sweden
Filed Dec. 23, 1968, Ser. No. 786,196
Claims priority, application Sweden, Dec. 29, 1967, 18,087/1967
Int. Cl. A61f *13/16*
U.S. Cl. 128—290 3 Claims



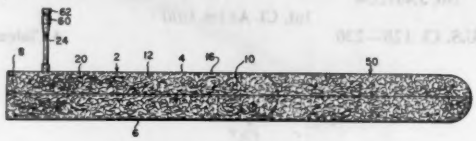
A sanitary towel having a member which extends in the longitudinal direction thereof is elastically deformable particularly in the transverse direction of the towel, and is of such width that in the position of use of the towel it is elastically deformed to thereby urge the side edges of the portion of the towel situated between the thighs of the wearer into side leakage avoiding sealing engagement with adjacent leg portions irrespective of any variation in the relative positions thereof. The edges of the towel are curved upward in a prestressed position and are retained in that position by means of a strip of material that extends between the edges of the towel and is of a material that weakens upon contact with liquid, so that the strip ruptures after the towel is in place.

3,570,494
NASAL TAMPON
George H. Gottschalk, 8618 S. Sepulveda, Los Angeles, Calif.
Filed Dec. 16, 1968, Ser. No. 783,839
Int. Cl. A61b *17/12*
U.S. Cl. 128—325 11 Claims



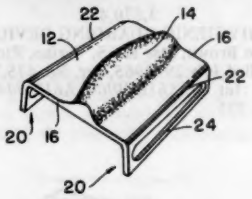
A self-retaining nasal tampon particularly designed to control nasal hemorrhaging, comprising, according to a preferred embodiment, an elongated flexible tube open at one end and sealed at its opposite end, a plurality of, e.g., three, inflatable sleeves surrounding and sealingly attached to the tube, preferably one such sleeve adjacent the closed end of the tube, one adjacent the open end of the tube and a third inflatable sleeve disposed around the tube intermediate the ends thereof, and including means positioned within the tube to permit facile inflation of each of the inflatable sleeves independently of each other to form respective inflated bags or balloons, and to retain such bags in their inflated position, and also to permit selective deflation of such inflated bags when desired, for removal of the device from the nasal passage.

3,570,495
PNEUMATIC TOURNIQUET
Frank O. Wright, 46 Belleair Drive, Memphis, Tenn.
Filed Apr. 19, 1966, Ser. No. 543,564
Int. Cl. A61b *17/12*
U.S. Cl. 128—327 9 Claims



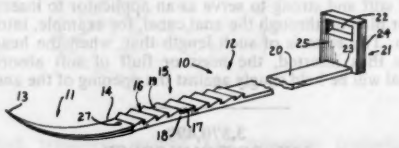
A tourniquet for constricting a person's limb having flexible side members arranged in superposed relation with registering longitudinal and end edges. Three of the edges are sealed to form an elongated pocket with an inflatable bladder inserted therein and the exterior surfaces of the member has means for releasably securing them together. The tourniquet is wrapped about the limb and pressure thereto is controlled by inflating the bladder.

3,570,496
EMERGENCY PRESSURE PLATE
William Sachs, Montvale, N.J. (Apt. 3A, 35 West 89th St., New York, N.Y. 10024)
Filed Nov. 18, 1968, Ser. No. 776,521
Int. Cl. A61b *17/12*
U.S. Cl. 128—327 3 Claims



A pressure plate comprising a flat support with an elongate lobe protruding from one side of the support and brackets on the other side of the support for receiving a belt. The belt holds the pressure plate against the body at a pressure point so that the lobe is forced against the pressure point to stop the flow of blood to an injured area.

3,570,497
SUTURE APPARATUS AND METHODS
Gerald M. Lemole, 1813 South Blvd., Houston, Tex.
Filed Jan. 16, 1969, Ser. No. 791,708
Int. Cl. A61b *17/06*; A61l *17/00*
U.S. Cl. 128—335.5 10 Claims



The invention is a suture with needle end, cord of latch notches, and latch collar end. The latch collar has a latch passage therethrough. The needle followed by latch notches is pulled through the tissue and the needle followed by a selective number of latch notches is continued on through the collar latch passage and severance is then made above

the last notch pulled through the latch collar as it thus is latched on the tissue surface to complete a stitch much more quickly than can be done by conventionally tying a suture knot.

3,570,498

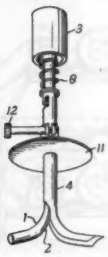
TROCAR AND CANNULA FOR VETERINARY USE

Charles Weighton, 64, Nettleham Road, Lincoln, England

Continuation of application Ser. No. 662,617, Aug. 23, 1967, now abandoned. This application Mar. 9, 1970, Ser. No. 17,033

Int. Cl. A61b *17/34*

U.S. Cl. 128—347 **5 Claims**



A veterinary instrument having a trocar with a curved end and a cannula with its end curved to lie within the trocar during insertion, the cannula being rotatable with respect to the trocar to open out the curved ends after insertion and thereby lock the instrument in position. The parts are held in the closed and open conditions by a pin and slot connection and a biassing spring. A disc can be adjusted to bear against the animal's skin and thus secure the instrument more firmly.

3,570,499

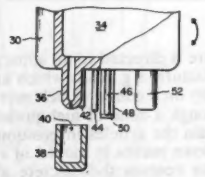
APPLICATOR FOR LIQUID HAIR TREATING PREPARATIONS

Francesca Ruta, 220 E 57th St., New York, N.Y.

Continuation-in-part of application Ser. No. 490,171, Sept. 23, 1965, now abandoned. This application Nov. 1, 1968, Ser. No. 772,793

Int. Cl. A45d *19/02*

U.S. Cl. 132—9 **3 Claims**



An applicator for liquid hair preparations and the like is provided with a plurality of liquid dispensing nozzles which may be applied to or worked through the hair for selected and selective application to produce a streaked application of the preparation. The applicator is also provided with a plurality of spacer teeth substantially as long as the dispensing nozzles to permit the operator to guide the applicator along the scalp by means of the dispensing nozzles and the teeth to vary the distance between the nozzles and the scalp, and said teeth also serving to aid in separating the flow of preparation to provide the streaked effect. The applicator is a container made of deformable squeeze material for control of the preparation dispensing.

3,570,500

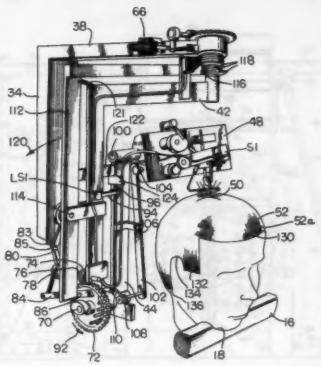
METHOD AND APPARATUS FOR TREATING HAIR

Ronald G. Berry, 135 E. Woodland, Fort Wayne, Ind.

Filed Nov. 5, 1968, Ser. No. 773,443

Int. Cl. A45d *24/36*

U.S. Cl. 132—45 **17 Claims**



This invention pertains to an apparatus and a method of using it, in which the hair on an individual's head is measured in a plurality of uniformly distributed regions on the head and a record made of the measurements and thereafter the hair is engaged in the same regions and drawn out to the measured length in conformity with the recording and is cut off at that length.

3,570,501

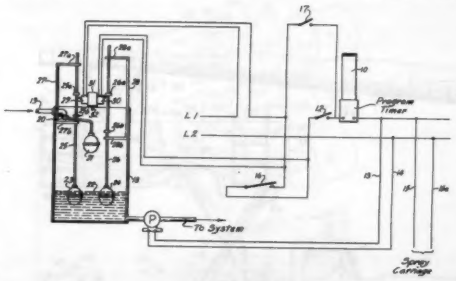
SAFETY CONTROL FOR AUTOMATIC CARWASH PUMP

Lois G. Dale, 1613 Grant St., and Thelma V. Davis, 321 N. 24th St., Unionville, Mo.

Filed Mar. 12, 1969, Ser. No. 806,611

Int. Cl. B60s *3/04*; B08b *3/02*

U.S. Cl. 134—45 **2 Claims**



A safety control system which is operable to shut off the pump and other carwash equipment in the event that the supply of water to the pump is depleted below a predetermined level. The carwash is interrupted in midcycle and provision is made for completing the cycle even though the car may in the meantime have departed while the system was inoperative.

3,570,502

VEHICLE WASHING APPARATUS

Le Moyne E. Farnsworth, Racine, and John H. Jurkens, Wauanakee, Wis., assignors to John H. Jurkens, Dane County, Wis.

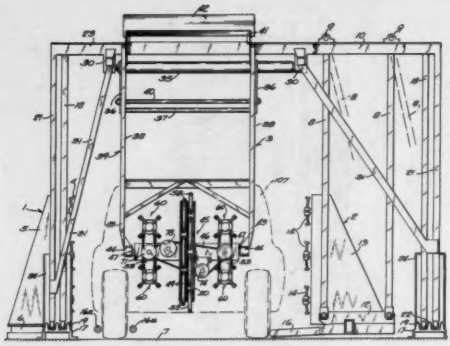
Filed June 16, 1969, Ser. No. 833,555

Int. Cl. B60s *3/02*

U.S. Cl. 134—45 **17 Claims**

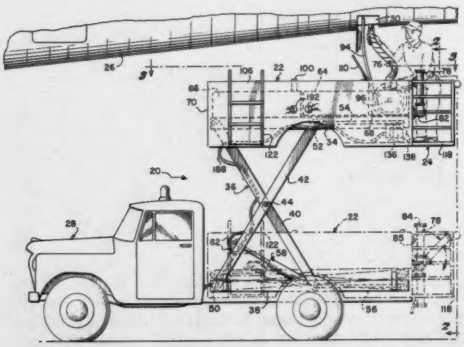
A vehicle washing apparatus utilizing high pressure liquid spray nozzles. The apparatus includes a pair of side banks,

each incorporating a series of rotatable spray nozzles adapted to spray high pressure cleaning liquid against the sides of the vehicle, and a movable carriage carrying a set of spray nozzles on both its front and rear surfaces is adapted to ride over the top of the vehicle as it moves through the apparatus to clean the front, top and rear surfaces of the vehicle.



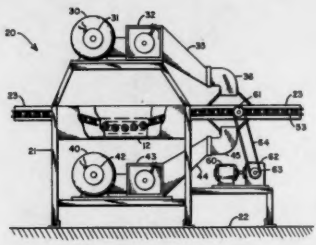
The carriage is mounted to rotate about a horizontal transverse axis, and during the washing cycle, the carriage rotates 180° from its original position so that the set of nozzles, which was originally facing to the rear will be facing to the front at the completion of the washing cycle and the second set of nozzles will be facing to the rear in position to wash the next succeeding vehicle advancing through the apparatus.

3,570,503
HIGH-LIFT UNIT FOR RAPID SERVICING OF AIRCRAFT-INSTALLED LAVATORIES
Alfred E. DeBoliac, P.O. Box 947, Buena Vista Station, Miami, Fla.
Filed Nov. 15, 1968, Ser. No. 776,081
Int. Cl. B08b *3/08, 9/08*
U.S. Cl. 134—58 **12 Claims**



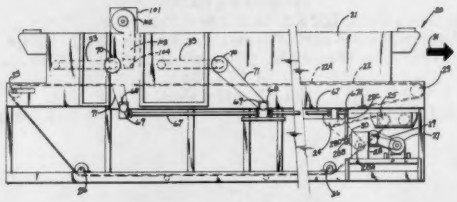
Self-contained mobile lavatory servicing and sanitation unit which expedites the cleaning of aircraft lavatory waste receptacles through a system of operably connected tanks and apparatus providing means for removal and carrying away of wastes from the aircraft and cooperating means for water-flushing of the receptacles and for transferring the wastes and the flushed material into the mobile unit, and cooperating means for chemically sanitizing and deodorizing the receptacles together with means for emptying of the removed wastes from the mobile unit and means for flushing, sanitizing and deodorizing the waste removal portion of the unit after emptying, the unit being vehicle supported and adapted to have major portions elevator positionable to closely adjacent the cleanout plumbing connections of the aircraft and provided with work stations having means for supporting an operator in an elevated position on the apparatus for operating the controls for the unit and the aircraft plumbing connections so that rapid, economic servicing of sanitary facilities on the aircraft can be accomplished in a unitary operation while the aircraft is positioned on the runway.

3,570,504
WASHING AND DRYING APPARATUS
John J. Frantzen, St. Paul, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.
Filed Oct. 1, 1968, Ser. No. 764,196
Int. Cl. B08b *3/10*
U.S. Cl. 134—64 **2 Claims**



A washing and drying apparatus having a plurality of elongated rollers which are power driven so as to produce a propelling surface for transporting material through a cleaning solution and a drying station.

3,570,505
APPARATUS FOR CLEANING ARTICLES OF MANUFACTURE
Max Randall, 525 Longview Road, South Orange, N.J.
Filed June 6, 1969, Ser. No. 830,953
Int. Cl. B08b *3/00*
U.S. Cl. 134—72 **21 Claims**

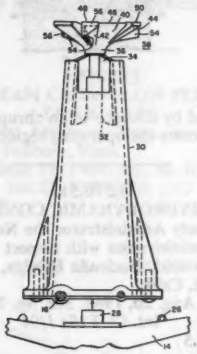


This disclosure is directed to an apparatus for cleaning articles of manufacture, e.g., cans which are carried or resting freely in quantity on a conveyor belt moving at a high rate of production through a zone of high-pressure sprays up to 60 p.s.i. To maintain the articles in position on the conveyor a traveling holddown means is moved in synchronization with the conveyor to contain the discrete articles between the moving conveyor and traveling holddown means. The arrangement is such that the holddown elements or means are rendered individually self-adjusting to the size of the particular articles being transported on the conveyor and/or rendered adjustable as a unit.

3,570,506
WATER DISPERSING APPARATUS DISHWASHER
Joseph H. Reifenberg, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 17, 1969, Ser. No. 807,616
Int. Cl. B08b *3/04, 13/00*
U.S. Cl. 134—183 **4 Claims**

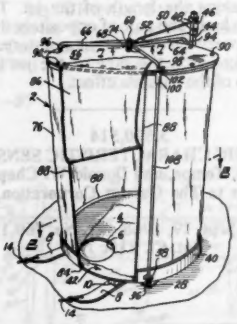
Improved water dispersing apparatus for dispersing water about the area of the upper rack of a dishwasher, the ap-

paratus including a rotatable member which is of inverted, generally conical shape, different segments of the lower surface of the member having different slopes to deflect the upwardly directed stream of water at different angles depending



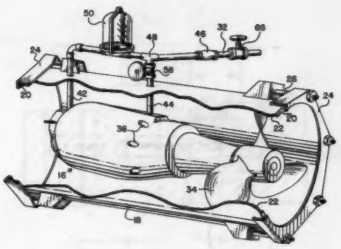
upon which of the surfaces the stream impinges upon, the member also including segments open from the periphery to the hub to permit part of the water to pass directly upwardly therethrough.

3,570,507
ICE FISHING TENT
Morris Kashuba, 1563 Main St., Peckville, Pa.
Filed July 7, 1969, Ser. No. 839,277
Int. Cl. A45f *1/02*
U.S. Cl. 135—1 **6 Claims**



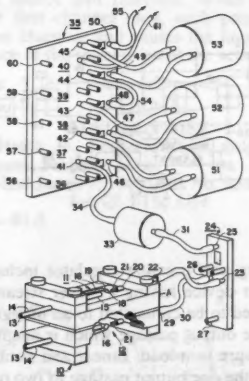
An ice-fishing tent including a circular base plate with skis attached thereto, and having a vertical post secured to one edge thereof that is surmounted by a radial support arm. A plurality of radially extending ribs is connected to the support arm and carries a circular top member, a fabric shell being connected between the base and said top member. Spring biased, removable brace tubes extend vertically between the outer ends of the ribs and brackets on the base to complete the assembly.

3,570,508
FERTILIZER INJECTORS
John A. Boggs, and Billy R. Boggs, Kress, Tex., assignors to Boggs Farmers Supply, Inc., Kress, Tex.
Filed Jan. 3, 1966, Ser. No. 518,100
Int. Cl. B05b *7/26*
U.S. Cl. 137—2 **14 Claims**



Fertilizer is fed to irrigation water at a preset time rate by a pump powered by the flow of irrigation water.

3,570,509
METHOD AND APPARATUS FOR PRODUCING A FIXED FREQUENCY FLUID SIGNAL
Hans-Dieter Kinner, Attleboro; Richard W. Hatch, Foxboro, and Paul M. Blaiklock, Newton Centre, Mass., assignors to The Foxboro Company, Foxboro, Mass.
Filed Apr. 11, 1968, Ser. No. 720,708
Int. Cl. F15c *3/08, 3/14*
U.S. Cl. 137—13 **6 Claims**



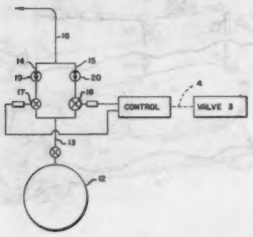
A pair of elements each incorporate vibrating reed means for producing an oscillatory output at a predetermined frequency; the oscillatory output from the two elements are effectively beat together by a fluidic amplifier to thereby produce a resultant signal having an envelope whose frequency is the difference between the respective frequencies produced by the two oscillatory elements; a signal corresponding to this envelope may be obtained from the fluidic amplifier output by suitable filtering to thereby produce a square wave having a stable interval; this square wave output may be employed for timing and clock functions in fluidic systems.

3,570,510

SELF-CLEANING VALVE AND METHOD THEREFOR

Teruo Tsutsumi, Yokohama-shi, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed May 3, 1968, Ser. No. 726,424
Claims priority, application Japan, June 30, 1967, 42/42104
Int. Cl. F16l 45/00
U.S. Cl. 137—15 3 Claims



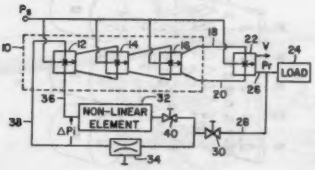
A method of cleaning a valve seat and a valve device suitable for application of said method, wherein clean fluid such as gas, air, water and the like, is supplied to the valve seat of the valve device from a circular space having an annular slit so as to keep the valve seat clean.

3,570,511

NON-MOVING PART PRESSURE REGULATOR

Thomas W. Bermel, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Apr. 23, 1968, Ser. No. 723,398
Int. Cl. F15c 1/12
U.S. Cl. 137—81.5 11 Claims



A nonmoving part pressure regulator including a proportional amplifier device having a power stream inlet passage which is adapted to be connected to an unregulated pressure source and one output passage which is adapted to supply a regulated pressure to a load. Linear and nonlinear feedback paths connect the one output passage to two opposed control orifices of the proportional amplifier device.

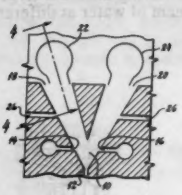
3,570,512

SUPERSONIC FLUIDIC SWITCH

Raymond V. Thompson, Simsbury, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.

Filed Dec. 24, 1968, Ser. No. 786,684
Claims priority, application Great Britain, Dec. 28, 1967, 58834/67
Int. Cl. F15c 1/04
U.S. Cl. 137—81.5 7 Claims

Fluid relays which operate with supersonic flow and remain stable irrespective of load impedance are disclosed. Isolation of the operating region of the relays from the receivers is accomplished by bleeding off the boundary layer about the outlet passages to cause total discontinuity in the subsonic portion of the fluid stream. The disclosed relays are



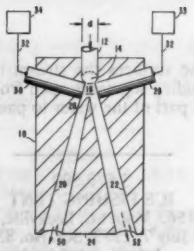
also characterized by absence of an abrupt change in section where the fluid enters the operating region.

3,570,513

ELECTROHYDRODYNAMIC CONTROL VALVE

T. O. Paine, Deputy Administrator the National Aeronautics, and Space Administration with respect to an invention of; Richard J. Salvinski, Hacienda Heights, and Owen O. Fiet, Redondo Beach, Calif.

Filed Aug. 20, 1968, Ser. No. 754,020
Int. Cl. F15c 1/04
U.S. Cl. 137—81.5 9 Claims



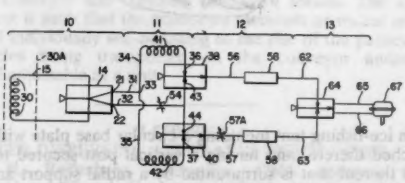
An electrohydrodynamic control valve is disclosed. The valve includes a first inlet for forming a jet of noncharged fluid and a plurality of fluid receiving apertures downstream from the inlet jet. The jet is selectively deflected toward one of the apertures by impressing an electric field of predetermined intensity along the length of the jet. The valve may further include at least one pair of oppositely diverging channels disposed between the jet and the apertures. These channels are adapted to lock the flow of the jet along the wall thereof by means of the Coanda effect.

3,570,514

FLUIDIC CHARACTERISTIC SENSOR

Trevor G. Sutton, Tempe, and Donald W. Chapin, Scottsdale, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Sept. 17, 1968, Ser. No. 760,154
Int. Cl. F15c 1/12
U.S. Cl. 137—81.5 8 Claims



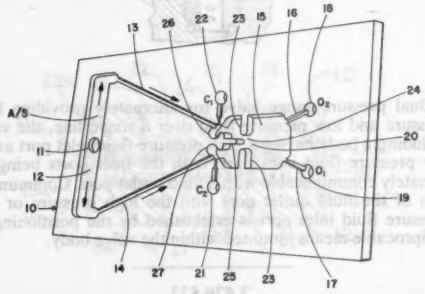
The subject system is provided to sense changes in a selected characteristic such as temperature, pressure, humidity, etc., in a localized region. The system utilizes fluidic principles which are characterized by the absence of moving

parts. The illustrated system includes means for generating pulsating signals at a frequency bearing some relation to the characteristic being sensed. These pulsating signals are supplied through resonant transmission lines, including delay means, to amplifiers of the beam diode type, the transmission lines and diodes being designed to shift the frequency phase and amplitude to produce signals with a varying amplitude, proportional to the frequency of the original signals. The amplitude modulated signals are then supplied to filter elements where the mean DC level of the signals is extracted and fed to an amplifier for summing and amplification to the desired pressure output.

3,570,515
LAMINAR STREAM CROSS-FLOW FLUID DIFFUSION LOGIC GATE

Hans-Dieter Kinner, Attleboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed June 19, 1969, Ser. No. 834,784
Int. Cl. F15c *1/18, 1/12*
U.S. Cl. 137—81.5 **4 Claims**

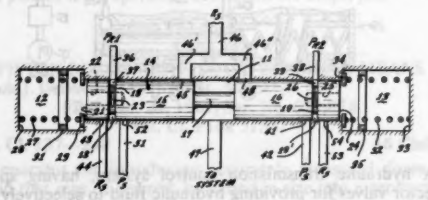


A fluid logic gate wherein two laminar streams are intersected in a diffusion area, with a control jet applicable to each of the laminar streams upstream of the intersection, with an output from the diffusion area in alignment with each of the streams, on the logic basis of zero output when the control jets are either both on or both off.

3,570,516
LATCHING COMPARATOR

Richard K. Mason, Granada Hills, Calif., assignor to Bell Aerospace Corporation

Filed Mar. 7, 1969, Ser. No. 805,268
Int. Cl. F16k *31/12*
U.S. Cl. 137—87 **6 Claims**

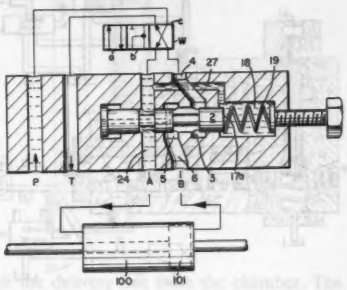


Disclosed is a differential pressure responsive device for comparing pressures applied thereto and upon a predetermined differential between the pressures causing movement of the device through a predetermined distance, force is applied to latch the comparator in its limit position in the direction of movement. The force applied may, for example, be a source of hydraeric pressure. The term "hydraeric" as used throughout this specification and the appended claims is defined as being generic to hydraulic and pneumatic and as synonymous in the broad sense with fluid under pressure.

3,570,517
APPARATUS FOR REGULATING THE FLOW OF LIQUIDS

Hubert Odenthal, Wombach, Germany, assignor to G. L. Rexroth GmbH, Lohr Main, Germany

Filed July 11, 1969, Ser. No. 841,011
Claims priority, application Germany, July 16, 1968, P 17 75 203.3
Int. Cl. F15b *11/08*
U.S. Cl. 137—87 **10 Claims**

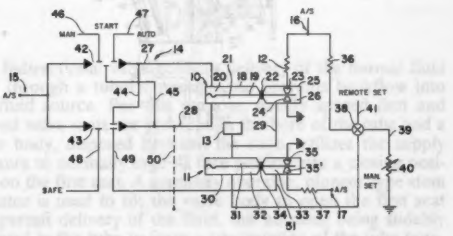


Apparatus which controls the flow of pressurized liquid between a pump and a reservoir on the one hand and the chambers of a double-acting cylinder on the other hand comprises a pressure reducing valve whose housing accommodates a reciprocable spool which can throttle the flow of liquid in the second of two channels provided in the housing and connected with opposite chambers of the cylinder. The first channel is in permanent communication with an internal chamber of the housing which accommodates one end surface of the spool and a spring which biases the spool to a position in which the spool offers less resistance to the flow of liquid in the second channel. A four-way valve regulates the flow of liquid between the channels of the housing and the pressure source and reservoir. When the pressure of liquid in the first channel rises, such pressure is communicated to the chamber and causes the liquid acting against the end surface of the spool to assist the action of the spring.

3,570,518
FLUIDIC TIMER

Richard W. Hatch, Jr., Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed June 19, 1969, Ser. No. 834,855
Int. Cl. F15c *3/04*
U.S. Cl. 137—81.5 **1 Claim**

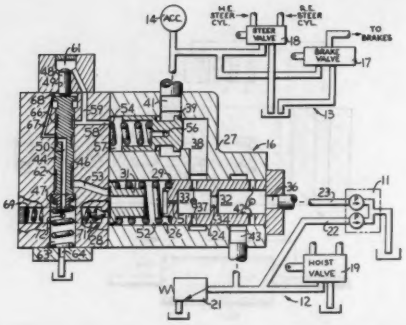


A fluid system for establishing time periods based on fluid pressure comparisons, in which a fluid resistance-capacity system is used as a time function, controlled by a fluidic flip-flop system as applied through a pressure differential control unit to a pressure differential comparison unit.

3,570,519
COMBINATION ACCUMULATOR CHARGING, FLOW CONTROL AND RELIEF VALVE ASSEMBLY

Donald L. Bianchetta, Coal City, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 6, 1968, Ser. No. 773,739
Int. Cl. G05d *11/03*; F17d *3/00*; F01b *25/02*
U.S. Cl. 137—101 4 Claims

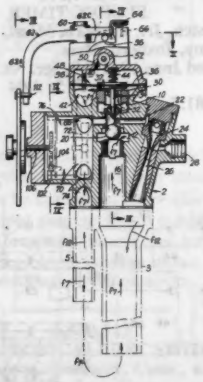


A control valve in a hydraulic system including an accumulator circuit and an open center circuit having a flow control valve member capable of delivering a generally constant volume of fluid to the accumulator while delivering any excess flow to the open center circuit. The same valve member is responsive to a pilot valve when the accumulator is charged to its maximum pressure for blocking the accumulator circuit and delivering full flow to the open center circuit.

3,570,520
VOLUMETRIC VALVE

Fiorello Sodi, Via Palazzo dei Diavoli 22, Firenze, Italy

Filed Sept. 24, 1969, Ser. No. 860,671
Claims priority, application Italy, Jan. 15, 1969, 4420/69
Int. Cl. B01d *35/00*; F16r *31/36*
U.S. Cl. 137—110 14 Claims

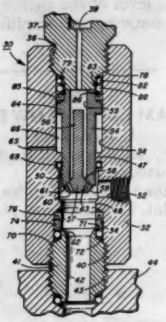


A volumetric valve contains an impeller for undergoing rotation in opposite direction depending on the direction of passage of water through a resin in a vessel. The valve switches the direction of water flow after the impeller measures a given magnitude of water passage during treatment and regeneration respectively.

3,570,521
DUAL PRESSURE RANGE VALVE

Duane L. Kirschenman, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Feb. 4, 1969, Ser. No. 796,344
Int. Cl. G05d *16/04*
U.S. Cl. 137—113 1 Claim

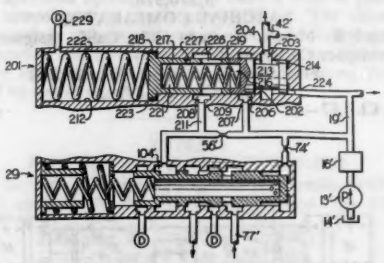


Dual pressure range valve for alternately providing high pressure and low pressure fluid over a single line, the valve including a body having a high pressure fluid inlet port and a low pressure fluid inlet port, both the inlet ports being alternately communicable with a fluid outlet port. Communication of the fluid outlet port with the high pressure or low pressure fluid inlet port is established by the positioning of reciprocable means mounted within the valve body.

3,570,522
HYDRAULIC PRESSURE MODULATING TRANSMISSION CONTROL SYSTEM

Joachim Horsch, Wood Dale, and David S. Ohaver, Farmington, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Original application May 10, 1967, Ser. No. 637,459, now Patent No. 3,468,194. Divided and this application Feb. 10, 1969, Ser. No. 833,212
Int. Cl. G05d *11/00*
U.S. Cl. 137—117 3 Claims



A hydraulic transmission control system, having speed selector valves for providing hydraulic fluid to selectively actuate speed and directional gear clutches and a pressure modulating valve for modulating pressure rise of hydraulic fluid, to control fluid pressure and fluid flow. A differential valve associated therein and having differential fluid pressure regulator means to provide fluid to the directional selector valve at a differentially constant lower pressure compared with main rail fluid pressure, the differential valve also having: a safety reset valve and safety react delay orifice for preventing actuation of a directional gear clutch after a start-up with the controls inadvertently out of neutral gear; quick dumping check valve means for insuring proper operation of the pressure modulation valve; modulating valve means for

eliminating or reducing hydraulic fluid pressure peaks; and throttle means for reducing refilling time for the directional gear clutches.

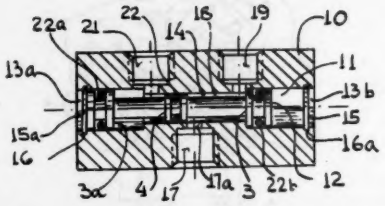
The above combination provides a preferred environment for a modulating valve in a transmission control system, the modulating valve including a load piston and spool reciprocably arranged in a bore with spring means interacting between the spool and load piston, a pressure modulating chamber being formed in the bore on one side of the load piston, the load piston and bore cooperating to form a relief passage in combination with the modulating chamber upon modulation of fluid in the chamber to a selected pressure.

3,570,523

SELF-REGULATING RECIPROCATOR DEVICE

Richard S. Pauliukonis, 6660 Greenbriar Drive, Cleveland, Ohio

Filed July 16, 1969, Ser. No. 842,191
Int. Cl. F15b *21/12*; F16k *31/36*
U.S. Cl. 137—119 **2 Claims**



A device for transmitting pressurized fluid from a supply to receiver means such as a tank or a cylinder or the like, comprises a spool carrying at each end symmetrically opposing pistons of diameter larger than the diameter of the third piston located in the middle of said spool, the spool being moved in either direction by the working fluid pressure acting upon said spool to alternatingly feed either one or another port in the housing or to feed and to exhaust the transmitted fluid by additional ports provided, and in a self-regulated reciprocating action, such as found in the positive displacement pumps or in the fluid power controls such as four-way valves however without external operators such as motor-driving pump or solenoid-operating valve, and serves a multipurpose duty in a variety of applications of this device. Appropriate seals permanently positioned to remain engaged with pistons in all operating conditions are employed.

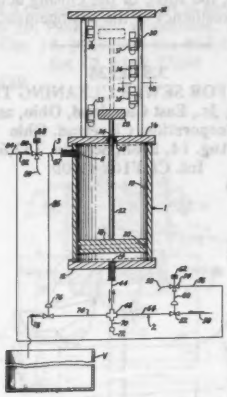
3,570,524

PISTON DOSER WITH LIQUID FLUSHING MEANS

Frank J. Dellasala, 1459 59th St., Brooklyn, N.Y.

Filed Dec. 22, 1967, Ser. No. 692,874
Int. Cl. F16k *51/00*
U.S. Cl. 137—240 **16 Claims**

Apparatus for introducing accurately measured doses of liquid that may, if desired, be varied in size into a product in process of being manufactured by use of a measuring chamber that is filled with the liquid to a level corresponding to the predetermined dose and delivering the dose by superatmospheric pressure displacement. The apparatus includes a measuring cylinder, a fluidtight piston movable therein to selected heights to measure out a dose of selected variable size and means to force the liquid into a discharge line leading to the product being made by applying force to the piston in the direction of the opening into the discharge line. The apparatus is particularly useful in dosing a slurry in which the solid particles are kept suspended by agitation before and during the dosing operations. Means for a water flush after each dosing may also be used. The same device can be used for dosing two or more products or batches of the same product by the use of branch delivery lines connected with the delivery line from the chamber. The operation can be automated, manual or a combination of both.



3,570,525

STEM-ACTUATED TILTABLE VALVE

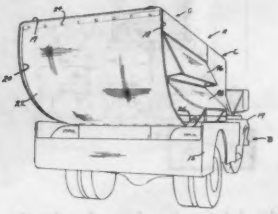
Adolph W. Borsum, and William K. Borsum, 521 Pacific Ave., Solana Beach, Calif.

Continuation-in-part of application Ser. No. 627,595, Mar. 29, 1967, now abandoned. This application Apr. 21, 1969, Ser. No. 825,100
Int. Cl. F16k *43/00*; A61h *13/00*; F16k *31/56*
U.S. Cl. 137—320 **8 Claims**

A bidirectional valve controls delivery of the normal fluid flow through a tubular passage and prevents backflow into the fluid source. For this purpose, axially spaced first and second valve seats are provided in the bore of the tube and a valve body, disposed between the seats, utilizes the supply pressure to normally urge its face portion into a closing position on the first seat. A manually operable, plunger-type stem actuator is used to tilt the valve body to open the first seat and permit delivery of the fluid, this actuator being slidably received in the tube to form a continuation of the tube bore. Preferably the actuator is a separate member facilitating its removal for replacement or sterilization purposes. The second valve seat normally is open during delivery but immediately closed by backflow pressure such as may be produced by sudden pressure failures in the upstream delivery system. In one embodiment the valve body as a single valve face reciprocately movable between the seats in response to the fluid pressure. Another embodiment employs

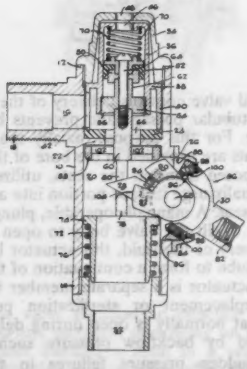
a pair of valve faces both of which are resiliently held against both seats to block delivery flow. When the stem actuator tiltably opens the first seat, the delivery pressure tiltably opens the second. Back pressure causes the second seat to immediately close, the force of the closing action being supplemented by the resiliency of the arrangement.

3,570,526
SHROUD FOR SEWER CLEANING TRUCK
Benjamin P. Fisco, Jr., East Cleveland, Ohio, assignor to AAA Pipe Cleaning Corporation, Cleveland, Ohio
Filed Aug. 14, 1968, Ser. No. 752,662
Int. Cl. F16k *49/00*
U.S. Cl. 137—340 **11 Claims**



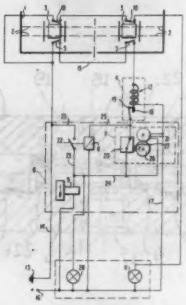
In a mobile unit which includes a water reservoir; water-handling components including a hose reel and hose normally coiled thereon, pump means suitably connected between the reservoir and the hose to pump water from the reservoir through the hose, valve means to control the flow of water; an internal combustion engine utilized to drive the pump means and a source of heat; the improvement for use with severe winter freezing conditions comprising a shroud assembly which in combination with a wall of the reservoir encloses the water-handling components and source of heat on all four sides and the top, the source of heat being arranged to circulate a flow of warm air within the space enclosed by the shroud in a continuous flow path against the wall of the reservoir and across and around the water-handling components to maintain all of such components and the water in the reservoir above the freezing temperature of water.

3,570,527
FLOAT CONTROLLED VALVE
Salmon Gerhardus Antonie Fritz, Ficksburg, South Africa, assignor to Lokval (Proprietary) Limited, Pretoria, Transvaal, South Africa
Filed Dec. 10, 1968, Ser. No. 782,692
Int. Cl. F16k *31/26*
U.S. Cl. 137—421 **9 Claims**



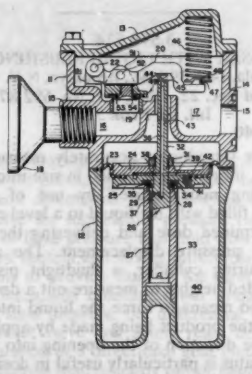
A float controlled valve having a displaceable valve element with a piston operative in a cylinder and both presenting differential areas for reaction thereon of the pressure of the fluid at the inlet, biassed means on the actuating lever to lock the valve against closing biassing means in the open position and providing rapid closing of the valve when retracted an auxiliary biassed means being also provided which, on release by means associated in the actuating lever, provides for rapid closing of the valve.

3,570,528
INSTALLATION FOR CHECKING THE OIL LEVEL IN OIL-CONSUMING DEVICES, ESPECIALLY IN INTERNAL COMBUSTION ENGINES
Willi Kramer, Waiblingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed May 9, 1969, Ser. No. 823,334
Claims priority, application Germany, May 9, 1969, P 17 51 312.2
Int. Cl. F16k *33/00;* **F02m** *5/00*
U.S. Cl. 137—423 **20 Claims**



An installation for checking the oil level in oil-consuming engines, especially in internal combustion engines, in which two float members, arranged as far from one another as possible, are provided in the oil sump which set into operation a refill mechanism when both float members have simultaneously assumed a position corresponding to the lowest permissive oil level over a predetermined period of time.

3,570,529
EMERGENCY VENT VALVE
Lynn I. Pickert, Watertown, N.Y., assignor to General Signal Corporation
Filed Oct. 13, 1969, Ser. No. 865,670
Int. Cl. F16k *31/38*
U.S. Cl. 137—494 **4 Claims**



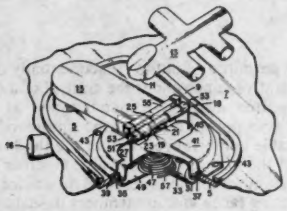
A vent valve to provide a local vent from the brake pipe of an automatic air brake system in response to an emergency

rate of reduction of brake pipe pressure. The valve is of the poppet type and the valve head is carried by a pivoted actuating lever. The valve head is pivotally connected to the lever and has a pivot axis parallel with the pivot axis of the actuating lever and which is offset from the centerline of the valve seat toward the lever pivot. This location of the valve head pivot affords quick valve opening and good mechanical advantage. The vent valve is spring-biased closed and is opened by a motor which is rendered effective only by a rapid reduction of brake pipe pressure such as is characteristic of an emergency brake application.

3,570,530
PRESSURE REGULATOR FOR A CIRCULATING FLUID SYSTEM

Frank Fuis, Jr, Norris, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 12, 1969, Ser. No. 875,885
Int. Cl. F16k *17/02*
U.S. Cl. 137—494 **9 Claims**

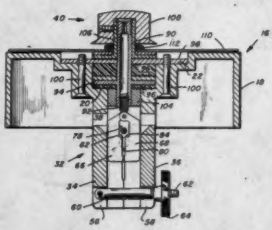


A regulator valve has been provided which automatically controls pressure within a circulating fluid system by regulating the exhaust flow from the system. In the illustrated embodiments the regulator utilizes a diaphragm driven flexible gate arrangement which opens and closes an exhaust port by virtue of an essentially friction-free rolling action to maintain a delicate balance between supply and exhaust air, thereby regulating the pressure inside the system according to a predetermined bias setting.

3,570,531
TUBE PINCHER FOR INTRAVENOUS ADMINISTRATION

John B. McGay, 1551 S. Yorktown Place, Tulsa, Okla.

Filed Aug. 22, 1969, Ser. No. 852,243
Int. Cl. F16k *37/00;* **F16l** *55/14*
U.S. Cl. 137—556 **7 Claims**

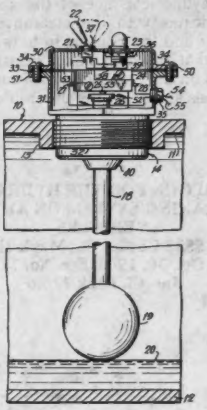


A pincher for flexible tubing in an intravenous administration set has a pinching element slidably disposed between two tubing holders receiving and grasping the flexible tubing. Transverse movement of the pinching element over the flexible tubing pinches the tubing to effectuate therein a circular orifice of desired size as a function of flow therethrough. The apparatus also includes calibrated scales for setting the tube pincher at the prescribed drip rate.

3,570,532
AUTOMATIC LIQUID LEVEL DETECTOR AND INDICATOR

Nick Lendino, 125 Rhode Island Ave., Massapeque, N.Y.

Continuation-in-part of application Ser. No. 791,385, Jan. 15, 1969, which is a continuation-in-part of application Ser. No. 743,714, July 10, 1968, now abandoned. This application Oct. 10, 1969, Ser. No. 865,424
Int. Cl. F16k *37/00*
U.S. Cl. 137—558 **16 Claims**

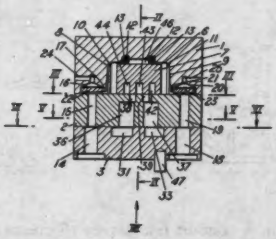


A level detector and indicator for mounting on a fuel oil supply tank, consisting of a housing having a shank which threadably engages into an already existing opening at the top of the tank and contains a float mounted on a sliding shaft which projects into the interior of the tank. The end of the sliding shaft within the housing is in contact with the plunger of a microswitch which is connected to the control system of an oil burner. When the oil in the tank drops below a predetermined level, the switch is opened to disconnect the oil burner from the system, and a warning light mounted on top of the housing turns on as an indication of the fuel oil level. The control system can then be manually reset by a switch mounted on top of the apparatus, so as to restart the oil burner. When a fuel delivery is made, the control system can be reactivated either manually or automatically.

3,570,533
PNEUMATIC SLIDE VALVES

Thomas William Hamilton, 27 Clevehurst Close, Stoke Pages, Buckinghamshire, England

Filed Jan. 21, 1969, Ser. No. 792,697
Claims priority, application Great Britain, Mar. 11, 1968, 11741/68
Int. Cl. F16k *37/00, 11/06*
U.S. Cl. 137—559 **8 Claims**



A double-pilot pneumatic slide valve of the kind in which a slider is movable to-and-fro within a surrounding housing by air under pressure through one pilot port to move the slider

in one direction and through a second pilot port to move the slider in an opposite direction, movement of the slider causing alterations between the connections between main airports in the housing is provided with a slider which is part-cylindrical and has a cross-sectional shape which is a segment of a circle. The slider is movable axially on its flat face, which slides on a flat base surface of the housing, by the pilot air pressure acting directly on the end faces of the slider and two spaced-apart seals are formed between the part-cylindrical face of the slider and an adjacent face on the surrounding part of the housing by two part-circular sealing rings which are carried in grooves in the face of the housing and bear against the part-cylindrical face of the slider. An air inlet passage communicates with the clearance space enclosed between the slider and the housing in between the two part-circular seals so that when air under pressure is supplied to the valve this acts on the part-cylindrical surface of the slider in between the seals and urges the slider into contact with the flat base surface.

3,570,534

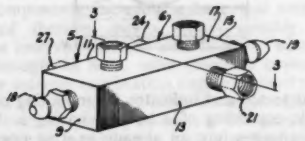
CONNECTION BLOCK FOR THE HYDRAULIC LINES OF A DUAL BRAKING SYSTEM ON AUTOMOTIVE VEHICLES

Herman Beavers, 5585 Garden St., Maple Heights, Ohio

Filed Oct. 30, 1968, Ser. No. 771,869

Int. Cl. F16k *11/00*

U.S. Cl. 137—594 **4 Claims**



This invention consists of a rectangular metal block having two openings in one side, an opening in each end, and one opening in the other side. It also has two openings in the top of the aforesaid block. The aforesaid openings in the rear of the block are known to be L-shaped and in the form of tubular legs when viewed from the top and the opening in the front of the block is also shown to be in the form of tubular legs that are T-shaped when viewed from the top. The rear top opening enters into the L-shaped opening while the front top opening enters the T-shaped opening.

3,570,535

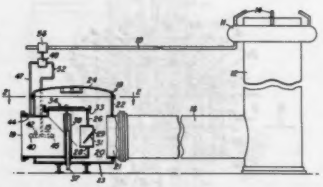
APPARATUS FOR DEVELOPING DIFFERENTIAL PRESSURES IN A CONDUIT LINE

John Smith Zink; Robert D. Reed, and Harold F. Koons, Tulsa, Okla., assignors to John Zink Company, Tulsa, Okla.

Filed Aug. 18, 1969, Ser. No. 850,753

Int. Cl. F23l *13/00*

U.S. Cl. 137—599.1 **3 Claims**



A venturi in a conduit line serves to create pressure differences which indicate the rate of flow of a gaseous medium. The pressure difference is employed to control the volume of steam that is added to the combustion zone for the gaseous medium. The apparatus includes means for relieving pressure upstream of the venturi.

3,570,536

ROTARY UNION DISTRIBUTOR

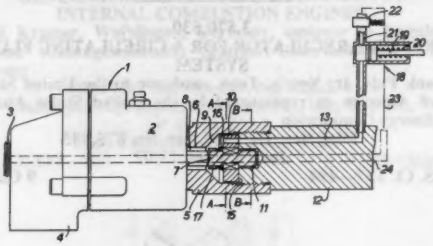
Gordon Richard Walker, and William Murray, Leamington, Spa, England, assignors to Filton Limited, Leamington Spa, Warwickshire, England

Filed May 15, 1967, Ser. No. 638,334

Claims priority, application Great Britain, May 18, 1966, 22149/66

Int. Cl. F16k *11/00*

U.S. Cl. 137—625.11 **5 Claims**



A system for permitting fluid to be sequentially distributed to different operative zones under the control of a distributor comprising a ported disc valve member and at least one cooperating coaxial ported member, the said members being relatively rotatable and arranged so that the fluid will flow in the direction of the axis of the disc valve member in passing from one said member to the other, and means for maintaining the cooperating faces of said members in sealing relationship.

3,570,537

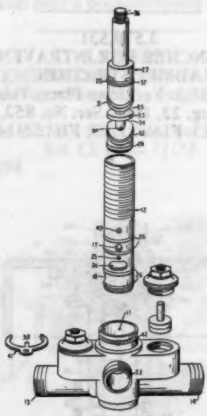
MIXING TAP

William M. Kelly, 61 Vista Street, Sans Souci, New South Wales, Australia

Filed Feb. 26, 1969, Ser. No. 802,413

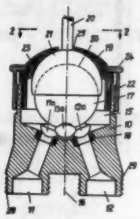
Int. Cl. F16k *11/02*

U.S. Cl. 137—625.15 **6 Claims**



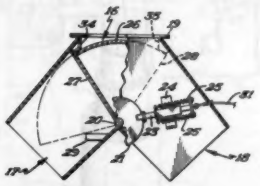
A mixing valve for mixing hot and cold water from separate supplies in which the flow of water to the valve outlet is controlled by two diagonally arranged O-rings which are mounted on a rotatable control spindle and sweep past separate hot and cold water inlet ports, the O-rings being separated by a portion of the spindle which is in sealing engagement with the wall of a bore in which the spindle is arranged whereby the effect of any difference in pressure in the hot and cold systems is minimized.

3,570,538
MIXING TAP FOR WATER
Paul Saffin Von Corpon, 4 rue de l'Athenee, Geneva, Switzerland
Filed Apr. 23, 1969, Ser. No. 818,618
Claims priority, application Switzerland, Apr. 30, 1968, 6435/68
Int. Cl. F16k 11/02
U.S. Cl. 137—625.4 3 Claims



The socket of a ball-and-socket joint is rigidly connected within the tap body to the operating handle, and the ball of the joint nests in a recess in the socket and incorporates four spherical-headed valves arranged symmetrically about the center of the ball, which ball is turned about a center different from its own center.

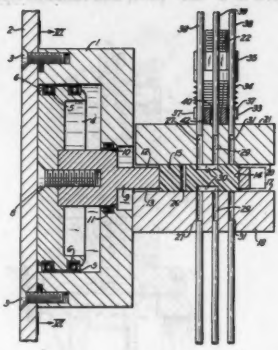
3,570,539
VALVE APPARATUS
Cecil F. Herring, 136 Riversedge Way, Minneapolis, Minn.
Filed Apr. 21, 1969, Ser. No. 818,035
Int. Cl. F16k 11/08
U.S. Cl. 137—625.44 2 Claims



A controllable channel having an entrance and bifurcating into a pair of exits. A movable gate within the channel has three positions in which it can block the entrance, or block either one of the exits. The gate is mounted on a rotatable shaft which is aligned with the line of bifurcation within the channel. The top of the gate is convexly curved, and the shaft is rotated to place the gate in the selected position. When the gate is positioned to block either one of the exits, a sidewall of the gate will act as a portion of the channel wall for the exit that is not blocked.

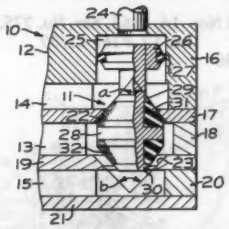
3,570,540
PISTON OPERATED SLIDE VALVE
Alexander Crawford McInnes; Export; Chester F. Klages, Jr., Pittsburgh, and Robert S. Kush, Wilkins Township, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Dec. 11, 1969, Ser. No. 884,082
Int. Cl. F16k 11/06, 25/00
U.S. Cl. 137—625.48 6 Claims

A piston has a stem projecting outwardly from a cylinder. The outer end of the stem is provided with a longitudinal slot extending through it, in which a valve slide fits and projects from the opposite sides of the stem. The exposed sides of the slide are flat and parallel. Secured to the cylinder is a stationary block that has a flat surface engaging one side of the slide. A floating block also has a flat surface engaging the other side of the slide. Mounted in the stationary block is a pair of studs that straddle the stem beside the slide and also extend through openings in the floating block. The blocks are provided with passages that register with a passage through



the slide when the latter is in one of its positions. A pressure bar is slidably mounted on the studs and has a projection between them engaging the floating block in the central longitudinal plane of the slide. Springs are mounted on the studs and press the bar projection against the floating block.

3,570,541
THREE-WAY DIRECTIONAL CONTROL VALVE
Maurice F. Franz, East Peoria, and Philip S. Webber, Morton, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Nov. 29, 1968, Ser. No. 779,903
Int. Cl. F16k 11/02
U.S. Cl. 137—625.66 15 Claims



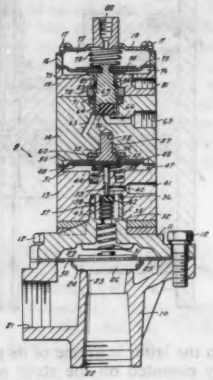
A three-way directional control valve comprises a poppet member reciprocally mounted therein to selectively communicate the working port of a fluid actuated device with either a pressurized fluid source or exhaust. The poppet member comprises at least one annular, elastomeric member secured thereon to form spaced seating surfaces adapted to engage respective seats to effect such selective communication.

A three-way directional control valve functions to either pressurize or exhaust the working port of a fluid actuated device. The valve's durability, leakage rate and ability to quickly respond upon actuation comprise primary design problems. In addition, the valve must normally be designed to adapt it for integration into rather complex fluid circuit combinations.

3,570,542
PILOT OPERATED VALVE HAVING AUXILIARY VALVE CONTROL
Noel Otto, and Herbert H. Kaemmer, Whippany, N.J., assignors to Automatic Switch Co.
Filed Sept. 24, 1969, Ser. No. 860,695
Int. Cl. F16k 31/385
U.S. Cl. 137—628 9 Claims

The valve has a main valve member whose position (open or closed) is controlled by a pilot valve adapted to vent the

high pressure side of the main valve member. The pilot valve is operated by an actuating means responsive to fluid pressure at an actuating pressure port. The actuating means communicates with the actuating pressure port via an auxiliary or conditioning valve. The conditioning valve is opened by fluid pressure applied to a "set" port, and remains open until fluid



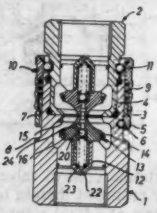
pressure is applied to a "trip" port, which closes it. Fluid pressure at the actuating pressure port operates the pilot valve and hence permits opening of the main valve only when the conditioning valve is open. A series of these valves automatically operate sequentially if the outlet port of each communicates with its own trip port and the set port of the next succeeding valve.

3,570,543

COUPLINGS FOR PRESSURE MEDIUM CONDUITS

Bror Thure Fridolf Ekman, Slalomvogen 12, 54100 Skovde, Sweden

Filed Nov. 14, 1968, Ser. No. 775,771
Int. Cl. F16k *11/00*
U.S. Cl. 137—630 **3 Claims**



The coupling has a pair of tubular-coupling members connectable to conduits for pressure mediums with each coupling member having a valve body therein which, when the coupling members are disconnected, is in a position to close its couplings member and which, upon connection of the coupling members, is moved to open its coupling member and to open a valve provided in each valve body to release any pressure medium remaining in its conduit so that the coupling members may be easily connected.

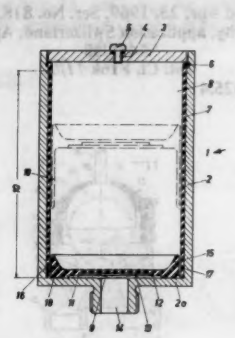
3,570,544

HYDROPNEUMATIC PRESSURE RESERVOIR

Johannes Ortheil, Anrath, Germany, assignor to Langen & Co., Dusseldorf, Germany

Filed Dec. 24, 1968, Ser. No. 786,715
Claims priority, application Germany, Jan. 9, 1968, P 16 75 344.9
Int. Cl. F16l *55/04*
U.S. Cl. 138—30 **2 Claims**

A hydropneumatic pressure reservoir of substantially cylindrical configuration in which a partition subdivides the interior of the reservoir into a gas chamber and a liquid chamber and the reservoir being provided at the ends thereof with



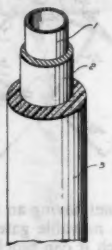
connections for the introduction of gas and liquid respectively. The partition is secured on or in the vicinity of the end which faces the gas chamber.

3,570,545

INSULATED TUBE AND METHOD OF MAKING THE SAME

Helmut Benteler, Bielefeld, Germany, assignor to Benteler-Werke AG, Schloss Neuhas, Krs., Paderborn, Germany

Filed Sept. 27, 1968, Ser. No. 763,311
Claims priority, application Germany, Sept. 29, 1967, P 16 25 936.2
Int. Cl. F16l *9/14*
U.S. Cl. 138—143 **11 Claims**



A tube and the method of making the same. A steel tube is internally clad with corrosion-resistant material and externally jacketed with foamed plastic material having a volumetric weight which at most approaches 0.7 p/cm.^{3}. The resulting product is corrosion-resistant as well as thermally insulated and sound insulated.

3,570,546

LAY-IN CONDUIT DUCT

James H. Jackson, Powderly, Tex., assignor to The Superior Switchboard Devices Company, Canton, Ohio

Filed Feb. 24, 1969, Ser. No. 801,582
Int. Cl. H02g *3/06*
U.S. Cl. 138—155 **5 Claims**

A fluidtight, lay-in duct for a conduit, having adjoining trough sections with flanges which are joined with an interposed gasket and having upstanding sidewalls terminating in sealing surfaces which are sealingly closed over a portion of their longitudinal extent by spaced trough covers having mating sealing members. The portion between the spaced trough covers is sealed by a removable insert spanning the joint

between the trough sections and having a plate portion traversing the upstanding sidewalls, projecting flanges on the

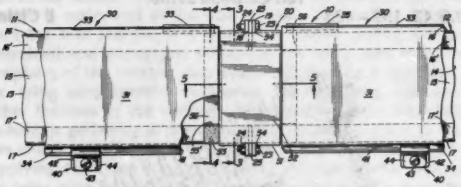


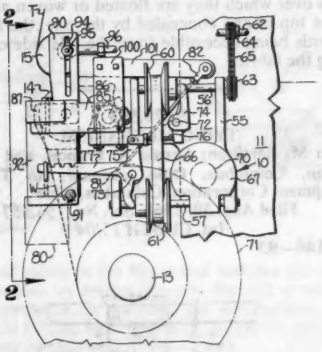
plate underlapping the trough covers, and sealing members between the removable insert and the sealing surfaces and trough covers.

3,570,547

GROUND WARP SHIFTING MEANS FOR TERRY LOOMS

Douglas P. Burgess, Woodleaf, and Gilmer A. Williams, Kannapolis, N.C., assignors to Cannon Mills Company, Kannapolis, N.C.

Filed June 19, 1969, Ser. No. 834,716
Int. Cl. D03d *39/22*
U.S. Cl. 139—25 **4 Claims**



A terry loom, of the type in which the fell of the cloth being woven is shifted forwardly and rearwardly during terry weaving relative to the beat-up point of the reed, is provided with means for shifting a ground warp tension-sensing whip roll forwardly and rearwardly in unison with like motion of the cloth without adversely affecting the normal function of the whip roll in controlling a letoff mechanism for the ground warps, thus obviating the need for an additional or separate roll or bar for shifting the ground warps incident to terry weaving.

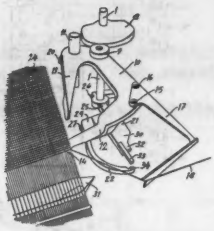
3,570,548

DEVICE FOR PRESENTING AND CUTTING THE SELECTED WEFT THREADS IN STATIONARY WEFT LOOMS

Ramon Balaguer Golobart, Calle Valls y Taberner, 11, Barcelona, Spain

Filed Aug. 29, 1968, Ser. No. 756,146
Claims priority, application Spain, Sept. 2, 1967, 345,157
Int. Cl. D03d *47/36*
U.S. Cl. 139—122 **6 Claims**

Apparatus for presenting weft yarns to the inserting element of a loom comprises a first assembly which reciprocates about a vertical axis and a second assembly which rotates unidirectionally about another vertical axis, each of the assemblies having one of two coacting cutting elements which cut the yarns after presentation to the inserting element,



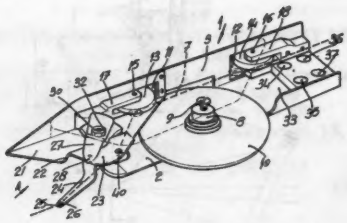
while the first assembly also includes an arm which presents the yarns to the inserter and also positions them to be cut by the two cutting elements.

3,570,549

DEVICE FOR INSERTING, POSITIONING AND BEATING UP THE WEFT THREAD IN A LOOM

Ramon Balaguer Golobart, Calle Valls y Taberner, 11, Barcelona, Spain

Filed Apr. 1, 1969, Ser. No. 811,971
Claims priority, application Spain, Apr. 25, 1968, 353,511
Int. Cl. D03d *47/04*
U.S. Cl. 139—123 **5 Claims**



An inserter means for a loom carries the weft thread through the shed and beats up the last previously inserted thread by means of a rotating disc which presses against the thread, while the inserter means is held against lateral displacement by rollers which bear against a stationary reed.

3,570,550

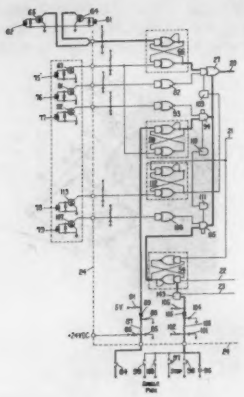
CONTROL SYSTEM FOR LOOMS

Walter James Budzyna, East Douglas, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Oct. 17, 1968, Ser. No. 768,428
Int. Cl. D03d *51/00*
U.S. Cl. 139—336 **4 Claims**

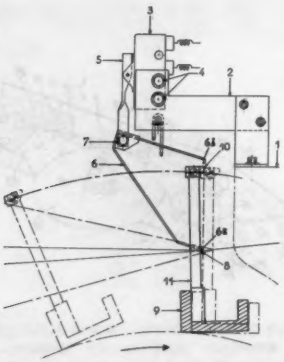
Solid-state logic circuitry of the computer type for accepting start or stop signals from numerous sources in a fly-shut-

tle loom and for translating those signals after suitable time-delay into command signals for an electrical clutch-brake



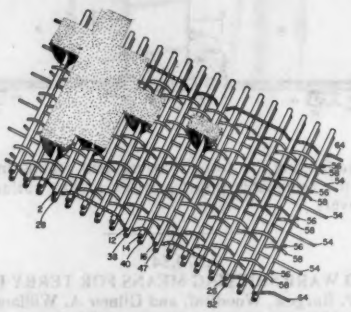
loom motor. Improved shuttle sensing means is provided for signalling the shuttle boxing condition during each picking cycle.

3,570,551
WEFT STOP-MOTION FOR SHUTTELESS LOOMS
Albert Deborde, Bourgoin-Jallieu, France, assignor to Ateliers Diederichs Societe Anonyne, Bourgoin-Jallieu (Isere), France
Filed Mar. 6, 1969, Ser. No. 804,955
Claims priority, application France, Mar. 18, 1968, 49773
Int. Cl. D03d *51/34*
U.S. Cl. 139—370 **5 Claims**



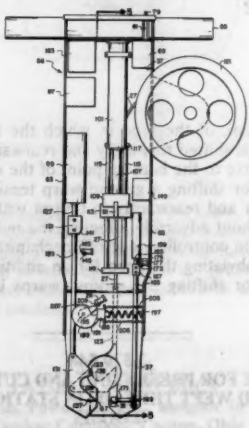
A weft stop-motion device is provided for a shuttleless loom with a continuous weft feed not requiring any positioning member for positioning of the weft. The control of the weft is effected from the opposite side of the feed without necessitating any cyclically operating electrical device. The weft stop-motion device is positioned at a fixed point on the loom frame and comprises a freely pivotable unrestrained needle which is bent at the middle to form two arms. The pivot of the needle is fixed to a lever arranged to actuate a microswitch. The end of one arm of the needle constitutes a feeler to contact the weft thread. The end of the other arm has a hook arranged to be engaged by a beak attached to a support on the sley, at the end of the stro f the sley. If the feeler is not held in raised position due to the absence of weft thread, the hook is drawn by the beak, which tilts the lever, actuates the microswitch and so stops the loom.

3,570,552
CUT-PILE FLOOR COVERING
Raymond J. Carrigan, Thompsonville, Conn., assignor to Bigelow-Sanford, Inc., Thompsonville, Conn.
Filed Nov. 22, 1968, Ser. No. 778,189
Int. Cl. D03d *27/06*
U.S. Cl. 139—403 **8 Claims**



A woven cut-pile fabric floor covering suitable for use with metal floating floor panels having a plurality of weftwise-spaced lifting cords woven into the carpet backing and extending warpwise, each cord floating over a plurality of groups of wefts, each group including at least three successive face wefts, the lifting cords lying substantially flat against the wefts over which they are floated or woven and disposed below the top of and concealed by the pile, the floats of the lifting cords being accessible from the pile side of the fabric for lifting the fabric.

3,570,553
TYING MECHANISM
Benjamin M. Bartilson; Gerald A. Francis, and Michael U. Widman, Columbus, Ohio, assignors to The Battelle Development Corporation, Columbus, Ohio
Filed Aug. 30, 1968, Ser. No. 756,557
Int. Cl. B21f *15/04*
U.S. Cl. 140—93 **8 Claims**



An apparatus for tightly joining a cluster of wires, cables or combinations thereof. The wires and/or cables may be limited to access from only one side. The cluster of wires or cables are joined together by wrapping a relatively stiff wire around the cluster. The wrapping means includes a rotatable disc having a central opening continuous with a radial opening extending through the periphery of the disc. A pulley is positioned near the periphery of the disc. The opening of the

disc is placed over the cluster of wires or cables and the cluster is positioned essentially in the central opening of the disc. One end of a length of tying wire is fed past the cluster and about perpendicular to the long axis of the wires or cables in the cluster. The end of the tying wire that has past the cluster is restrained as the disc rotates. The pulley engages the tying wire and forces it around the cluster pulling the unrestrained and unengaged portion of the tying wire over the periphery of the rotating disc where belt friction is applied to the tying wire thereby increasing the wrapping tightness. Other features of the various embodiments of the invention include: a gathering arm to bring the cluster of wires or cables closer together; a wire feed mechanism for automatically supplying the tying wire; a shearing mechanism for cutting the tying wire to length; a clamping mechanism for restraining one end of the tying wire; and, counter rotating heads to wrap the tie wire in place.

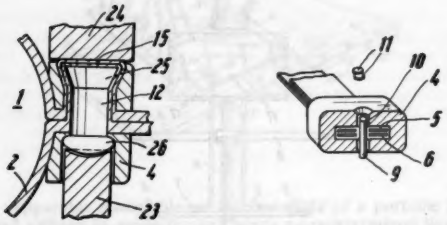
ERRATUM

For Class 140—147 see:
Patent No. 3,570,559

3,570,554
METHOD OF TIEING A BUNDLE OF CABLES

Heinrich Kabel, Quickborn, Holstein, Germany, assignor to Paul Hellerman G.m.b.H., Hamburg, Germany

Original application Apr. 9, 1965, Ser. No. 446,885. Divided and this application Sept. 12, 1967, Ser. No. 667,286
Int. Cl. B21f *3/00*
U.S. Cl. 140—93.2 **3 Claims**

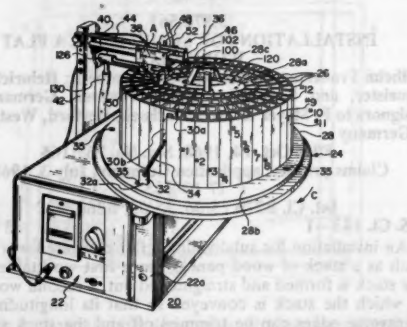


A bundle of cables or the like is tied with the aid of a strap fastened to a lock by means of a pin, the end of which may be upset. Apparatus for carrying out the method includes holding means for the lock, operating means for the pin, and tensioning and cutting means for the strap.

3,570,555
FRACTION COLLECTOR

Warren E. Gilson, 4801 Sheboygan Ave., Madison, Wis.

Filed Nov. 12, 1968, Ser. No. 774,967
Int. Cl. B65b *3/04*; G01n *33/00*
U.S. Cl. 141—1 **26 Claims**

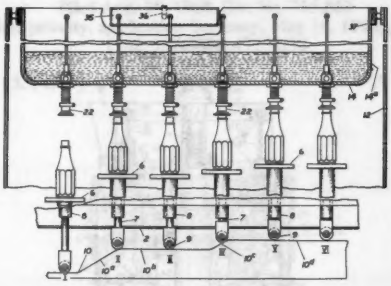


A fraction collector includes a spiral array of containers mounted for free rotation and a filling assembly mounted for free movement along a path intersecting the convolutions of said spiral array. A container engaging member is mounted on said filling assembly, and drive means move said member into engagement with successive containers in the spiral array to rotate said array while moving said filling assembly along said intersecting path.

3,570,556
METHOD OF AND APPARATUS FOR FILLING BOTTLES

James B. Anderson, Cleveland, Ohio, assignor to H. J. Heinz Company, Pittsburgh, Pa.

Filed Sept. 12, 1968, Ser. No. 759,274
Int. Cl. B67c *3/14*
U.S. Cl. 141—11 **11 Claims**

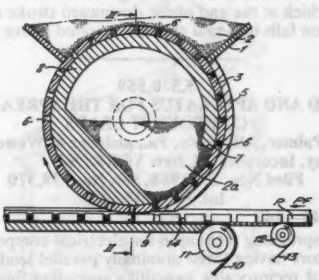


There is disclosed a method of and apparatus for filling bottles with a liquid, particularly a cold and/or viscous liquid such as ketchup into bottles at high speed and without breaking. The bottle is first filled with steam, also preferably in a surrounding atmosphere of steam, and then pressed against a valved filling head to open the valve. The cold liquid immediately condenses the steam in the bottle, creating a partial vacuum that pulls the liquid into the bottle at high velocity. If there is a surrounding atmosphere of steam, heat stresses in the glass will be largely eliminated.

3,570,557
APPARATUS FOR PRODUCING COMPOSITE FILTER PLUGS FOR CIGARETTES

Desmond Walter Molins, London, England, assignor to Molins Machine Company Limited, London, England

Filed Sept. 10, 1968, Ser. No. 758,809
Claims priority, application Great Britain, Sept. 15, 1967, 42269/67
Int. Cl. B65b *1/04, 3/04*; B67c *3/02*
U.S. Cl. 141—99 **10 Claims**



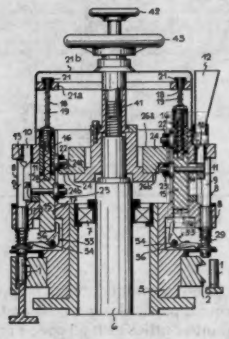
A device for feeding measured quantities of powdered material comprises a feed wheel having peripheral pockets open at both ends which receive and discharge material through their outer ends, and in which the quantities to be discharged can be augmented from within, either from an auxiliary supply within the wheel or from within the inner

ends of pockets long enough to accommodate more than the required quantity; in either case a stationary metering plate prevents excessive discharge.

3,570,558
CONTINUOUSLY ROTATING FILLING MACHINE HAVING A VOLUMETRIC METERING DEVICE FOR PULVERULENT OR GRANULAR MATERIAL

Maurice D. L. Lachaussee, 360 rue del'Yser, Ans-LeZ-Liege, Belgium

Filed June 3, 1968, Ser. No. 733,861
Claims priority, application Belgium, June 14, 1967, 41,387
Int. Cl. B65b *57/06*
U.S. Cl. 141—140 **11 Claims**



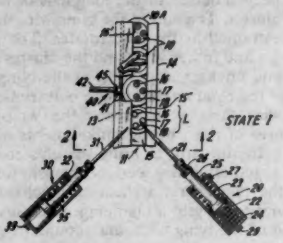
In a continuously rotating filling machine there is provided a volumetric metering device for supplying a charge of granular or pulverulent material to cases, comprising a drum rotating about a fixed vertical shaft and having at its periphery cavities for lodging the cases to be filled, which receive in turn a charge of pulverulent material through distributing means composed of a distribution plate rotating about said fixed shaft with said drum and having vertical peripheral channels arranged opposite said cases for transferring into said cases said charge of material from a fixed supply vat of arcuate shape, during a part of the rotation of said distributing plate, each channel having an upper metering cavity containing a sliding metering piston which is integral with a horizontal arm of a vertical piece having rollers rolling on a fixed cam causing said vertical piece to move alternately up and down so that said metering piston enters said fixed vat and for extracting therefrom a charge of material which at the end of the downward stroke of said metering piston falls into said channels located above said cases.

3,570,559
METHOD AND APPARATUS FOR THE SPREADING OF COMPONENT LEADS

Burtis E. Palmer, Allentown, Pa., assignor to Western Electric Company, Incorporated, New YORK, N.Y.

Filed Nov. 27, 1968, Ser. No. 779,370
Int. Cl. B21f *1/02*
U.S. Cl. 140—147 **11 Claims**

A lead spreading technique for electrical components such as transistors having three nominally parallel leads, utilizes a plurality of reciprocable pencillike spreading fingers shaped to fit between and spread adjacent leads. The electrical components are preoriented single file in the conventional manner and are each sequentially located in the operative position by one of the pencil fingers itself. This "locating" finger is mounted upon a three-position cylinder, one position of which injects the finger in an intercepting relationship with one of the component leads as the component file advances. Upon the locating of a component at the operative position, the spreading fingers are reciprocated as closely as possible to the base of the component to separate the leads.

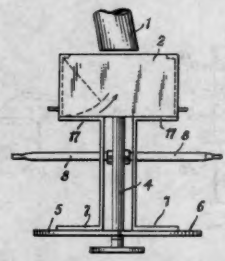


Upon full retraction of the locating finger a rubber membrane is employed as an escapement to hold the remaining transistors.

3,570,560
REFUSE COLLECTION APPARATUS

Kurt Henry Smedlund, Plefeltsgatan 33, Halmstad, Sweden

Filed Feb. 28, 1969, Ser. No. 803,325
Claims priority, application Sweden, Apr. 2, 1968, 4360/68
Int. Cl. B65b *1/06, 3/06*
U.S. Cl. 141—236 **7 Claims**



An apparatus for collecting refuse from a discharge chute, consisting of a container positioned below the chute, the container having a plurality of bottom discharge openings, pivoted plates located below the container support collection bags between them and the container and register a bag below each of the bottom openings in the container. The plates, when pivotally swung from a horizontal position, act to tilt the carriers and permit the removal of the bags therefrom, several of the carriers being swung to removal position at a time. The container has side openings closed by inwardly pivotal flaps.

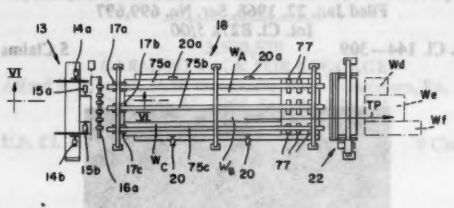
3,570,561
INSTALLATION FOR SUBDIVIDING A FLAT WORKPIECE

Wilhelm Frodermann, Schweicheln-Bermbeck; Heinrich Hagmeister, and Karl-Heinz Wittig, Herford, Germany, assignors to F. Meyer & Schwabedissen, Herford, Westphalia, Germany

Filed Oct. 14, 1968, Ser. No. 767,165
Claims priority, application Germany, July 3, 1968, P 17 03 723.9
Int. Cl. B27b *15/06, 25/02;* **B26d** *5/22*
U.S. Cl. 143—1 **3 Claims**

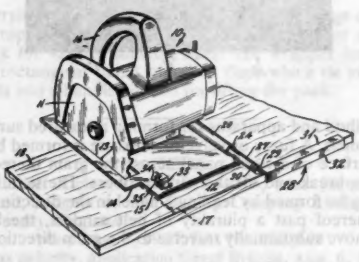
An installation for subdividing a flat elongated workpiece, such as a stack of wood panels, has a first worktable where the stack is formed and straightened out, a second worktable to which the stack is conveyed so that its longitudinal and transverse edges can be trimmed off and the stack sized by saws mounted adjustably on a displaceable traverse and where a piece or pieces can be cut off the leading end of the workpiece and removed laterally. From thence the work-

piece is fed through a station where its longitudinal edges are again trimmed and it is transversely subdivided into a plurality of parts. The parts are fed into separate transport



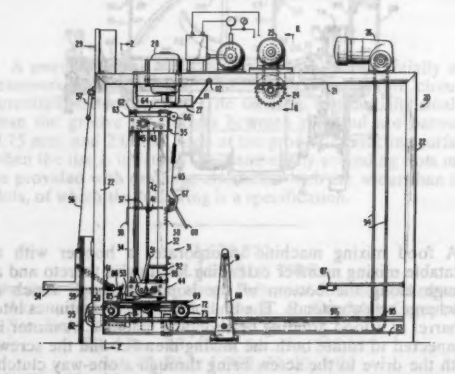
mechanisms which can line them up differently so that a single cut of a transverse saw can sever them producing sections of different lengths.

3,570,562
ATTACHMENT FOR A PORTABLE SAW
Charles W. Tracy, Tallahassee, Fla., assignor to International Enterprises, Inc., Tallahassee, Fla.
Filed June 25, 1969, Ser. No. 836,363
Int. Cl. B27b *27/06*
U.S. Cl. 143—6 **6 Claims**



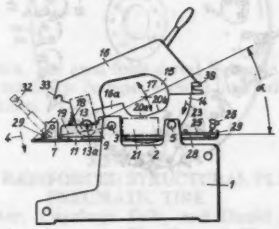
Apparatus mountable on the bed plate of a portable saw and utilized to guide the saw along a predetermined line of cut.

3,570,563
ICE CUBING MACHINE
Thomas Frank Hall, 504 Downing St., New Smyrna Beach, Fla.
Filed Jan. 6, 1969, Ser. No. 789,189
Int. Cl. B27b *5/02*
U.S. Cl. 143—38 **7 Claims**



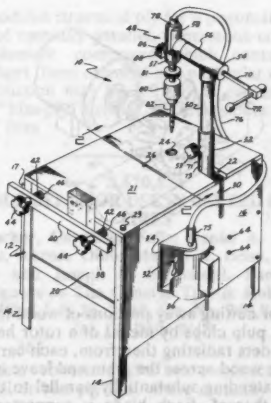
An ice cubing machine designed to produce ice cubes from large blocks of ice stacked within a carriage which is made to move in a reciprocating motion beneath a rotating gang of saws. Upon initial movement of the carriage, the blocks are moved upwardly a distance equal to the size of the cubes desired. The ice is then scored in one direction as the carriage first moves under the saws, and in another direction perpendicular to the first as the carriage is rotated and returns for movement again under the saws. A horizontally rotating cutting blade severs the cubes which have been scored at the end of the carriage return movement. Before the carriage again begins movement beneath the gang saws, the stacked blocks are made to move upwards to repeat the cubing cycle.

3,570,564
CONVERTIBLE CIRCULAR BENCH SAW AND MITERING SAW
Otto Bergler, Lowersheim, Germany, assignor to Eugen Lutz K. G. Maschinenfabrik, Lomersheim, Germany
Filed Aug. 28, 1968, Ser. No. 755,856
Claims priority, application Germany, May 10, 1968, Jan. 3, 1968, L58272;L47372/38
Int. Cl. B27b *5/00*
U.S. Cl. 143—1 **17 Claims**



A convertible saw with a circular saw blade which is of a very simple design so as to permit the plate-shaped worktable with the elements thereon including the motor and saw blade to be reversed 180° from an upper position in which miter cuts may be made to a lower position in which long straight cuts may be made. In the upper mitering position the motor and saw blade may be pivoted downwardly toward the worktable to cut through a workpiece, while in the lower position the motor and saw blade are locked to the worktable so that the saw blade projects for a considerable distance through the slot in the worktable.

3,570,565
MULTI-PURPOSE TOOL
Stanley R. Morgan, 18 School St., Warehouse Point, Conn.
Filed Oct. 2, 1968, Ser. No. 764,535
Int. Cl. B27c *9/02*
U.S. Cl. 144—1 **2 Claims**



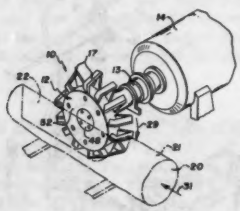
A multipurpose tool which may be employed for above

table operations, such as drilling, buffing, and grinding, or below table operations, such as sawing and shaping, wherein rotary tool mounting means is vertically adjustable so that it may be positioned above or below a worktable.

3,570,566
ROTARY CUTTING DEVICE
James F. McCreery, Latrobe, Pa., assignor to Kennametal Inc., Latrobe, Pa.
Filed Jan. 16, 1969, Ser. No. 791,606
Int. Cl. B27c *1/00, 9/00*
U.S. Cl. 144—2 9 Claims

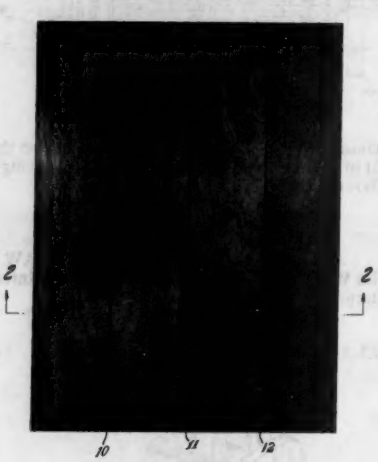
The invention relates to a cutting device which has a cutting disc rotatably mounted on the outer end of a swingable arm and with the disc having a plurality of support blocks for cutter members mounted thereon in distributed relation about the periphery. Each support block has a bore which rotatably receives the shank of a picklike cutting member which is retained in assembled relation with the respective block while being free to rotate relative to the block.

3,570,567
WOOD CHIP CUTTING APPARATUS
Brian D. Hickman, Crofton, British Columbia, Canada, assignor to MacMillan Bloedel Limited, Vancouver, British Columbia, Canada
Filed Mar. 13, 1969, Ser. No. 806,935
Int. Cl. B27g *13/04*
U.S. Cl. 144—220 23 Claims



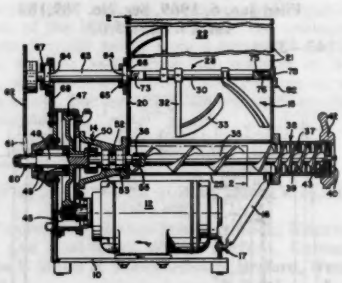
Apparatus for cutting away portions of wood logs, timbers, and the like as pulp chips by means of a rotor head having a plurality of holders radiating therefrom, each carrying a bent knife to cut the wood across the grain and leave a flat surface on the wood extending substantially parallel to the direction of movement thereof. Each blade is supported outwardly thereof relative to the axis of rotation of the head, and is firmly held in precise position.

3,570,568
METHOD AND APPARATUS FOR FORMING A TEXTURED SURFACE ON WOOD
Joseph P. Kneisel, 3920 El Lado Drive, La Crescenta, Calif.
Filed Jan. 22, 1968, Ser. No. 699,697
Int. Cl. B27k *5/00*
U.S. Cl. 144—309 5 Claims



A method and apparatus for forming a textured surface on wood panels. A fuzzy or velvetlike texture is formed by sanding a surface of a wood panel across the grain thereof. This serves to break and lift the surface fibers. The textured surface may be formed by feeding a panel in the direction of the grain thereof past a plurality of belt sanders, the belts of which move substantially traverse to the grain direction.

3,570,569
FOOD MIXING MACHINE
Richard S. Hartley, and Harold D. Hannah, Troy, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio
Filed May 5, 1969, Ser. No. 821,632
Int. Cl. B02c *18/22*; B01f *15/02*
U.S. Cl. 146—186 5 Claims



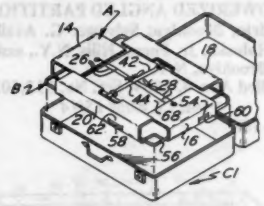
A food mixing machine incorporates a hopper with a rotatable mixing member extending lengthwise thereto and a trough along the bottom of the hopper through which a discharge screw extends. The end of the screw continues into a barrel of a food grinding or chopping machine. A motor is connected to rotate both the mixing member and the screw, with the drive to the screw being through a one-way clutch. Rotation of the motor in one direction causes the screw to discharge material from the hopper while the mixing member is rotated, and rotation of the motor in the other direction

causes the mixing member to mix materials in the hopper without transmitting power to the screw. The mixing member is mounted for simple uncoupling and removal from the hopper in order to clean the same.

3,570,570
GARMENT PACK FOR LUGGAGE

Alfred R. Winner, 1616 Woodmere Way, Havertown, Pa.

Filed May 21, 1969, Ser. No. 826,571
Int. Cl. A45c *5/12*
U.S. Cl. 150—52 **9 Claims**

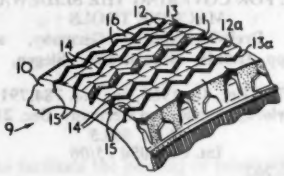


A carrying pack for unitizing garments in luggage comprising a wrapper portion and an adjustable frame for adapting the pack for various suitcase sizes. The wrapper includes a central rectangular panel with four flaps which tie about the garments and a handle portion for lifting the pack.

3,570,571
TIRES

John Michael Riches, Castle Bromwich, near Birmingham, England, assignor to The Dunlop Company Limited, London County, England

Filed Aug. 7, 1967, Ser. No. 658,849
Claims priority, application Great Britain, Aug. 6, 1966, 35300/66
Int. Cl. B60c *11/06*
U.S. Cl. 152—209 **11 Claims**



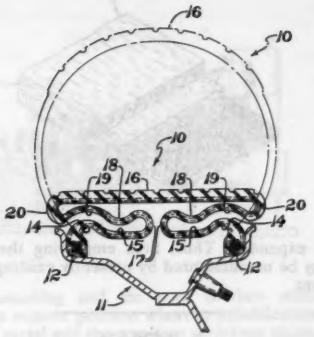
A pneumatic tire tread having both circumferentially and transversely extending slots formed in one or more circumferentially extending ribs. The slots are substantially smaller than the groove or grooves between ribs and are between 0.75 mm. and 2.0 mm. wide at the ground-contacting surface when the tire is inflated. The transversely extending slots may be provided with drainage channels which are wider than the slots, of which the following is a specification.

3,570,572
COLLAPSIBLE TIRE

Armando Cardenas, Cuyahoga Falls, and Ronald L. Simpson, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Filed Dec. 23, 1968, Ser. No. 786,117
Int. Cl. B60c *13/00, 19/00, 5/00*
U.S. Cl. 152—352 **8 Claims**

A pneumatic tire which in the inflated condition has a conventional toroidal shape but while in deflated condition assumes a shape wherein the respective sidewall portions are axially folded inwardly to decrease the overall dimensions of

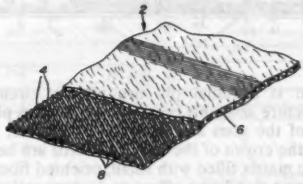


the collapsed tire. The axial folds define a double curvilinear fold to permit maximum collapse without interfering with adjacent fold sections.

3,570,573
FILAMENT REINFORCED STRUCTURAL PLY FOR A PNEUMATIC TIRE

Leon F. Marker, Cuyahoga Falls, and Daniel A. Meyer, Akron, Ohio, assignors to The General Tire & Rubber Company

Filed Feb. 26, 1968, Ser. No. 708,006
Int. Cl. B60c *9/00*
U.S. Cl. 152—359 **10 Claims**



A high modulus structural ply for a pneumatic tire which is composed of mutually parallel, continuous cords embedded in an elastomeric compound which contains uniformly dispersed, short fibers oriented in a particular direction. Such a ply construction may be utilized as carcass plies and/or breakers in "bias-ply" tires or, as carcass plies and/or belts in "radial-ply" tires.

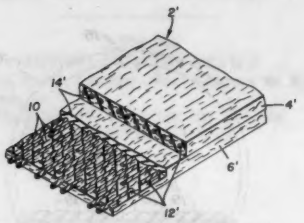
3,570,574
EXPANSIBLE BELT FOR USE IN BELTED PNEUMATIC TIRES

Leon F. Marker, Cuyahoga Falls; Daniel A. Meyer; Henry Piotrowski, Akron, Ohio; Marvin A. Deisz, deceased, late of Akron and Joseph P. Sansonetti, Executor, Akron, Ohio, assignors to The General Tire & Rubber Company

Filed July 26, 1968, Ser. No. 749,913
Int. Cl. B60c *9/18*
U.S. Cl. 152—361 **2 Claims**

Disclosed is a rubberized cord belt construction, for use in either a radial or bias ply tire, where mutually parallel alignments of discontinuous cord lengths replace the conventional parallel continuous cords and the elastomer of the belt contains uniformly dispersed, oriented, filaments. The cord

alignments are disposed at a small angle relative to the crown of the tire. Because of the discontinuity of the cords, the belt



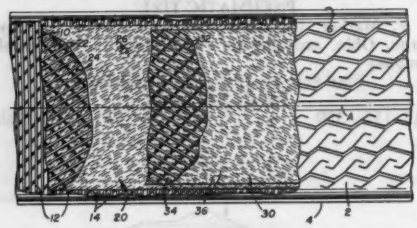
may be expanded. Thus, tires employing these low-angle belts may be manufactured by presently existing tire-shaping equipment.

3,570,575

RADIAL PLY PNEUMATIC TIRE WITH HIGH ANGLE BREAKER ASSEMBLY

Leon F. Marker, Cuyahoga Falls, Ohio, and Daniel A. Meyer, Akron, Ohio, assignors to The General Tire & Rubber Company

Filed July 24, 1968, Ser. No. 747,143
Int. Cl. B60c *9/14*
U.S. Cl. 152—361 **4 Claims**



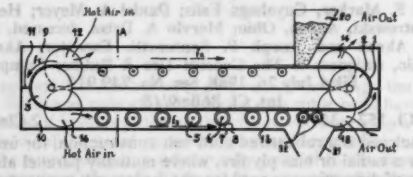
Disclosed is a radial ply tire with a circumferentially located cincture assembly composed of endless plies in which the cords of the plies are disposed at atypical, large angles relative to the crown of the tire. The cords are held within an elastomeric matrix filled with small, oriented fibers. The plies have the same stabilizing effect as do conventional "low angle" breakers; but, because of their relatively large cord angles, are more extensible. As a result, radial ply tires featuring these high angle breakers may be manufactured by conventional "hard drum" or "flat band" processes.

3,570,576

CONTINUOUS DEHYDRATION APPARATUS

Henri Griffon, 2, Place Mazas, Paris 12 eme, France

Filed Aug. 21, 1969, Ser. No. 852,014
Claims priority, application France, Aug. 22, 1968, 163832
Int. Cl. B01d *1/14*
U.S. Cl. 159—8 **10 Claims**



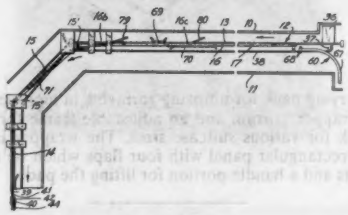
Apparatus for dehydrating foodstuffs of a creamy or pasty consistency having elongate upper and lower compartments through which an endless conveyor belt passes, the foodstuff being dried with air which flows countercurrently with the conveyor belt in the upper compartment, where a layer of the foodstuff to be dehydrated is deposited on the outer surface of the conveyor belt, and which flows concurrently with the conveyor belt in the lower compartment, where the dehydrated foodstuff is removed from the conveyor belt, the conveyor belt being supported in the upper compartment by rollers positioned below the conveyor belt which contact its inner surface and in the lower compartment by rotatable discs positioned below the conveyor belt which contact the outer surface thereof bearing the layer of foodstuff thereon.

3,570,577

POWERIZED ANGLED PARTITION

Daniel M. Bedrin, Brooklyn; Sylvester G. Avallone, Seaford, and Justin Haluska, Jr, Forest Hills, N.Y., assignors to Torjesen, Inc., Brooklyn, N.Y.

Filed Apr. 4, 1969, Ser. No. 813,602
Int. Cl. E05f *15/14*
U.S. Cl. 160—188 **8 Claims**



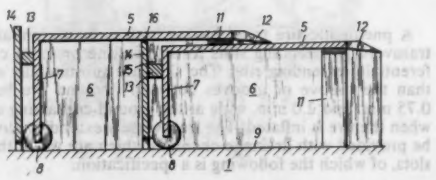
A powerized partition which may be shifted from a collapsed storage position to an extended, wall-defining position. The wall structure provided by the extended panel is nonlinear, being in the form of an L or similar configuration. The panel assembly is provided with powerized drive means for extending and collapsing the same.

3,570,578

DEVICE FOR COVERING THE SLIDEWAYS OF MACHINE TOOLS

Kurt Loos, Dreis-Tiefenbach, Germany, assignor to Kabelschlepp GmbH, Schulstrasse, Siegen, Westphalia, Germany

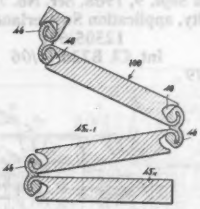
Filed Dec. 18, 1968, Ser. No. 784,791
Claims priority, application Germany, Dec. 21, 1967, P 16 02 868.5
Int. Cl. E05d *15/06*
U.S. Cl. 160—202 **10 Claims**



A covering device for the slideway of a machine tool, which comprises a plurality of boxes successively decreasing in size so as to be adapted to telescope in each other, each of said boxes having a top wall and two sidewalls extending in the longitudinal direction of and being connected to said top wall, each of said boxes also having a rear wall connected to the pertaining sidewalls, the top walls of each two adjacent and successive boxes when in at least partially telescoped condition defining passage means with each other, and col-

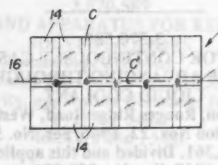
lecting channel means communicating with said passage means and arranged on the outside of the respective smaller box of each two adjacent successive boxes.

3,570,579
SLIDING COVER AND HOUSING DEVICE THEREOF
Shunichi Matsushima, Hamakita-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi
Filed Mar. 12, 1969, Ser. No. 806,576
Claims priority, application Japan, Mar. 18, 1968, Mar. 19, 1968, Mar. 19, 1968, 43/21005; 43/21169; 43/21170
Int. Cl. E06b 9/14; E05d 15/26
U.S. Cl. 160—235 **2 Claims**



A sliding cover and housing device thereof which comprises a sliding cover consisting of a plurality of cover pieces being linked with hinges and a pair of guides being provided along the upper inside walls of a cabinet, whereby the cover assembly can be housed in the rear and upper space of the cabinet in folded state.

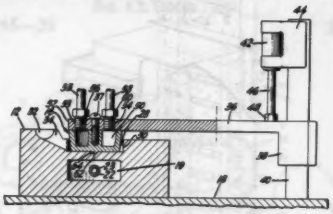
3,570,580
FABRIC-PLEATING GUIDE
Philip D. Warner, 15 Bristol Lane, Kings Park, N.Y.
Continuation-in-part of application Ser. No. 760,824, Sept. 19, 1968. This application May 21, 1969, Ser. No. 826,469
Int. Cl. A47h 13/14
U.S. Cl. 160—348 **4 Claims**



A device to facilitate the pleating of fabric which, in a flat unfolded condition, is positionable about the fabric and folded in unison therewith into an accordion-type configuration and, as a consequence, produces pleats in the fabric.

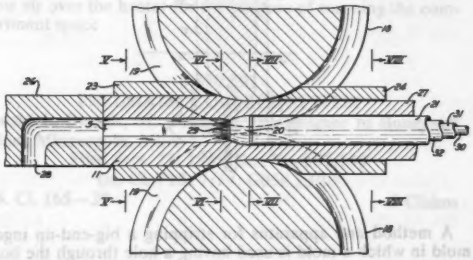
3,570,581
APPARATUS FOR CASTING RINGS
Richard J. Gennone, Wyomissing, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Apr. 19, 1968, Ser. No. 722,801
Int. Cl. B22d 15/02
U.S. Cl. 164—47 **1 Claim**

The disclosure concerns the casting of pieces, such as rings or the like, having bores extending therethrough from metals subject to substantial shrinkage during conversion from a molten to a solid state. The apparatus employed includes a main mold member having a cavity defined by a peripheral wall and a core member adapted to be moved between a position within the cavity and an elevated position remote therefrom. The core when in the cavity is spaced from the peripheral wall to define an annular molding cavity therewith. The core is cooled as by the circulation of a fluid medium such as cold water therethrough. In the casting of pieces with the mold member and core molten metal is poured into the molding cavity between the core and mold member, the core being in its lowered or active position at this time. The core is retained in such active position only until the metal surrounding the core has solidified sufficiently



to be self-sustaining and the core is then immediately elevated to its remote position whereby solidification of the main body of metal and the resultant shrinkage thereof takes place in the absence of the core.

3,570,582
PROCESS FOR MANUFACTURING CYLINDRICAL TUBULAR METAL BODIES
Albert H. Calmes, Lausanne, Switzerland, assignor to Jean-Paul Calmes, LeMont-sur-Lausanne, Switzerland
Filed Nov. 5, 1968, Ser. No. 773,397
Claims priority, application Luxembourg, Nov. 8, 1967, 54,813
Int. Cl. B21b 17/02
U.S. Cl. 164—76 **5 Claims**

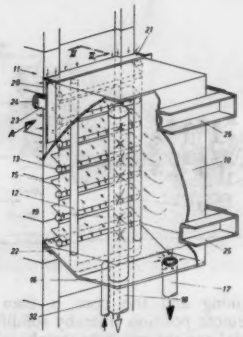


Metal is cast to form a bloom that is polygonal in cross section with an axial passage extending through it. Pressure is applied to one end of the hot bloom to move it forward, during which pressure is applied radially to its corners at its front end to reduce those corners and sink the bloom progressively from end to end. As fast as sinking occurs, the reduced inside of the advancing bloom is expanded to a circle having a diameter greater than the diameter of the passage before sinking. Simultaneously with said internal expanding the advancing bloom is compressed radially inward into circular cross section to form a cylindrical tubular body having an inside diameter greater than the diameter of the passage before sinking.

3,570,583
METHOD FOR COOLING THE MOLD BLOCKS OF A CASTING MACHINE WITH CATERPILLAR MOLD
Wilhelm Friedrich Lauener, Langenhard, Switzerland, assignor to Prolizenz AG, Bahnhofstrasse, Chur, Switzerland
Filed Sept. 9, 1968, Ser. No. 758,492
Claims priority, application Switzerland, Sept. 7, 1967, 12506/67
Int. Cl. B22d 11/06, 11/06
U.S. Cl. 164—87 **8 Claims**

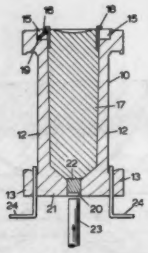
A method for cooling casting caterpillar mold blocks pro-

vides for a coolant spray case that has a rarefied atmosphere to prevent the escape of coolant. The apparatus to carry out



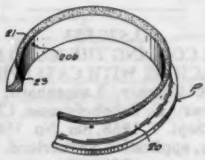
the method has a casing, spray nozzles and connecting pipes and is connected to a source of rarefied pressure.

3,570,584
METHOD FOR STRIPPING INGOT MOLDS
James R. Powers, St. Catharines, Ontario, Canada, assignor to Rio Algom Mines Limited, Toronto,Ontario, Canada
Filed Oct. 21, 1968, Ser. No. 769,137
Int. Cl. B22d *29/04*
U.S. Cl. 164—131 **4 Claims**



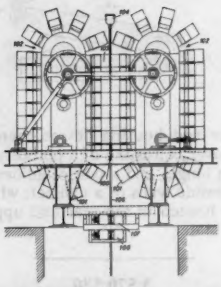
A method and apparatus for stripping a big-end-up ingot mold in which a mold is used having a hole through the bottom thereof which is filled with a plug and having at least one recess in the top thereof which is covered with a hot top. A wedge member is inserted in the recess which acts to jam the teemed ingot in a raised position when the ingot is rammed upwardly out of the mold.

3,570,585
PATTERN FOR MAKING MOLD WITH A BACK DRAFT
George V. Harris, Racine, Wis., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 25, 1969, Ser. No. 819,170
Int. Cl. B22c *7/00*
U.S. Cl. 164—245 **9 Claims**



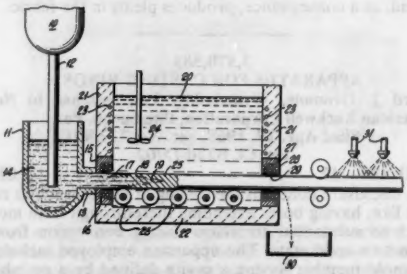
A composite metal and flexible material pattern for making a sand mold, and in which the flexible material is used in the back draft area to thereby permit the use of a single pattern which can be removed without damage to the sand mold. The single pattern is made so that when the flexible material portion of the pattern is worn or damaged, it can be readily removed from the rest of the pattern, namely the rigid metal portion, and replaced with a new flexible material portion.

3,570,586
MACHINE WITH CATERPILLAR MOLD FOR CASTING STRIPS FROM NONFERROUS METALS, ESPECIALLY ALUMINUM AND ALUMINUM ALLOYS
Wilhelm Friedrich Lauener, Langenhard, Switzerland, assignor to Prolizenz AG, Bahnhofstrasse, Chur, Switzerland
Filed Sept. 9, 1968, Ser. No. 758,367
Claims priority, application Switzerland, Sept. 7, 1967, 12505/67
Int. Cl. B22d *11/06*
U.S. Cl. 164—279 **10 Claims**



A caterpillar mold machine for casting strips of metal has mold blocks, guide and drive means for the mold blocks, and supporting and fastening means between the mold blocks and the guide and drive means connecting the mold blocks to the guide and drive means and having a low total heat conductivity.

3,570,587
APPARATUS FOR CONTINUOUSLY CASTING AND COOLING WHILE ADVANCING THROUGH A BODY OF LIQUID COOLANT
Howard A. Fromson, Rouges Ridge Road, Weston, Conn.
Original application Nov. 22, 1966, Ser. No. 596,292, now Patent No. 3,468,361. Divided and this application June 3, 1969, Ser. No. 829,921
Int. Cl. B22d *11/12*
U.S. Cl. 164—283 **3 Claims**



An apparatus for continuously casting metal in which a molten metal is cast continuously by introducing molten metal under pressure through a mold to form a partially solidified casting with a solid shell. The casting so formed is advanced substantially horizontally directly into contact with a bath of liquid coolant and at a depth at which the pressure acting on the periphery of the solid casting shell sufficiently

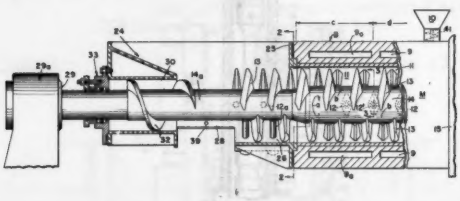
counteracts the pressure of the molten core in this casting to prevent rupture. The casting is maintained substantially at this depth until the casting is sufficiently solidified in the coolant to prevent outbreak of the molten core, and the casting so sufficiently solidified is discharged continuously from the coolant bath.

3,570,588

METHODS AND APPARATUS FOR COOLING MIXES SUCH AS CARBONACEOUS PARTICLE-PITCH MASSES BEING BLENDED

Dennis A. Wheeler, Saginaw, Mich., assignor to Baker Perkins, Inc., Saginaw, Mich.

Filed Dec. 12, 1968, Ser. No. 783,296
Int. Cl. F28f *5/06*
U.S. Cl. 165—1 **14 Claims**



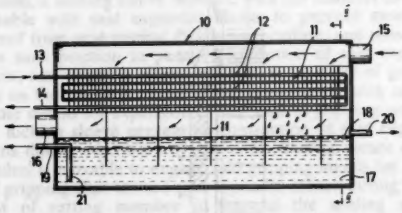
Methods and apparatus for intimately blending a mass such as a carbonaceous particle-pitch mass prior to compacting the mass and forming it into products wherein: the mass is forwarded while it is being intimately blended at an elevated temperature in a continuous mixer, a coolant is then supplied to cool the mix, and the mix is then further blended and mixed prior to discharge. In the form of the invention illustrated a vaporizable liquid coolant is added to the mass being blended and the mass is thereafter forwarded and mixed to blend the coolant with the mass, the mass then being introduced to a region of lower pressure wherein the liquid coolant vaporizes and further reduces the temperature of the mass uniformly, and while the mass is still being mixed.

3,570,589

METHOD AND APPARATUS FOR RECOVERING SOLVENT VAPORS

Erwin Biesinger, Rottenburg, Germany

Filed May 22, 1969, Ser. No. 826,856
Claims priority, application Germany, June 1, 1968, P 17 60 546.8
Int. Cl. F28d *15/00*
U.S. Cl. 165—1 **10 Claims**



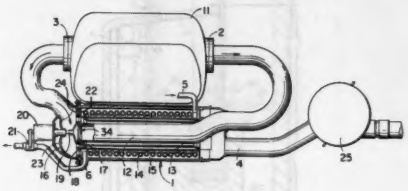
A method and an apparatus for the recovery of solvent vapors. An air stream enriched with vapors of a volatile solvent is advanced in a predetermined path. Cooling means is interposed in the path and effects condensation of the solvent vapors in the stream. The resulting droplets of condensate descend into an upwardly open receptacle where they are accumulated to constitute a body of recovered solvent. A body of liquid of lesser specific weight and volatility than the solvent floats on the surface of the body of recovered solvent and seals the latter against contact with the ambient atmosphere to thereby prevent renewed vaporization of the recovered solvent pending reuse of the same.

3,570,590

HEAT EXCHANGER CONSTRUCTION

Siegfried Kofink, Zell/Neckar, Germany, assignor to J. Eberspacher, Esslingen/Neckar, Germany

Filed July 3, 1969, Ser. No. 838,910
Claims priority, application Austria, July 29, 1968, A7388/68
Int. Cl. B60h *1/00*
U.S. Cl. 165—39 **14 Claims**



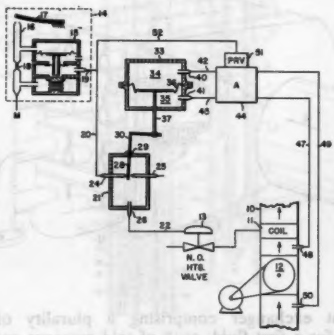
A heat exchanger for a heating system preferably for the space heating of motor vehicles comprises a central inlet pipe for exhaust gases from the automotive engine which is surrounded by an inner annular chamber connected to a discharge line and by a surrounding outer annular chamber in which is located a heating coil for a secondary heating medium. The heat exchanger includes a control mechanism in the form of rotatable disc elements which may be aligned or offset for the purpose of permitting selective flow from the central exhaust pipe or conduit selectively to the inner annular chamber or to the outer annular chamber in accordance with the desire to heat the secondary medium to a greater or lesser degree. The secondary heating medium is then conducted through a separate closed circuit to a heat exchanger such as an automobile heater where a fan is employed to blow air over the heater for the purpose of warming the compartment space.

3,570,591

PNEUMATIC CONTROL SYSTEM

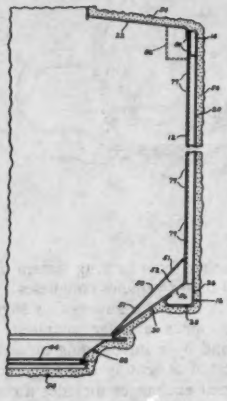
Donald L. Swords, Mt. Prospect, Ill., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sept. 11, 1969, Ser. No. 857,140
Int. Cl. F15c *1/14*; G05d *23/08*
U.S. Cl. 165—39 **5 Claims**



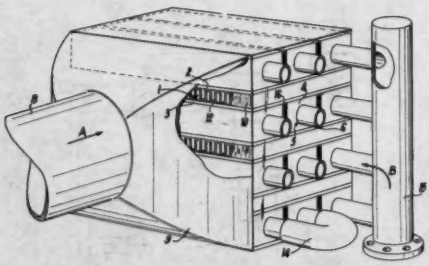
A pneumatic control system including an air motion responsive device including a fluidic amplifier for improving the response of said device wherein the amplifier is powered by the branch line pressure of a condition responsive device of said system supplied through a pressure reducing valve.

3,570,592
AERATING SYSTEM FOR A COVERED HOPPER RAILWAY CAR
Dallas W. Rollins, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.
Filed Feb. 18, 1969, Ser. No. 800,215
Int. Cl. F26b 3/00
U.S. Cl. 165—42 8 Claims



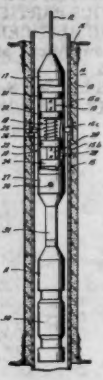
A system for aerating and controlling the temperature of ladings, such as perishable commodities, in a covered hopper railway car, includes a blower communicating with the interior of the car through the side sills and side stakes, formed as conduits, and through perforations in the side stakes and in slope plates of the hoppers. To complete the air circuit, there are also provided ducts at the top of the car. The flow of air may be reversed and the air may be heated or cooled.

3,570,593
HEAT-EXCHANGER
Raymond Isaaz, Naymont-Uzemain, and Georges Vailhen, Epinal, France, assignors to Societe Trane, Epinal, France
Filed Jan. 16, 1969, Ser. No. 791,691
Claims priority, application France, Feb. 5, 1968, 138,754
Int. Cl. F28g 3/00
U.S. Cl. 165—166 2 Claims



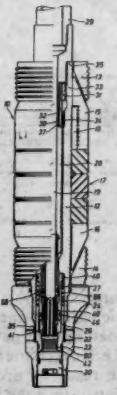
A heat exchanger comprising a plurality of parallel passages for a first fluid, each of said passages containing a packing, and, in alternation with said passages, groups of parallel shapes. Each of said shapes is provided with a longitudinal channel for the circulation of a second fluid and has two opposed faces respectively adjacent to two successive passages disposed on each side of the corresponding group of shapes, the shapes of a same group limiting between them spaces for the collection and the detection of possible leakage.

3,570,594
SUBSURFACE CONTROL APPARATUS FOR USE IN OIL AND GAS WELLS
Howell M. Hamilton, c/o Bell Engineering P.O. Box 3347, Odessa, Tex.
Filed Mar. 13, 1969, Ser. No. 806,891
Int. Cl. E21b 23/00, 47/12
U.S. Cl. 166—64 11 Claims



A magnetic pipe joint detector and digital logic circuits electrically coupled thereto are located in a fluidtight housing which is lowered through a string of pipe in an oil or gas well by means of a wire line. Coupled to the housing for lowering therewith is a downhole device which requires operation after it is lowered into the well. After the device reaches approximately the desired depth in the well, the housing is raised past a predetermined number of pipe joints. The logic circuits detect this occurrence and activate a timer which, after a predetermined time interval, initiates the operation of the downhole device.

3,570,595
HYDRAULICALLY OPERABLE VALVES
William O. Berryman, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.
Filed Nov. 22, 1968, Ser. No. 778,157
Int. Cl. E21b 23/00, 33/12
U.S. Cl. 166—128 17 Claims



A well packer apparatus including a body having a flow passage and check valve means movable upwardly and downwardly in said flow passage between positions opening and closing said flow passage to fluid flow, a hydraulically

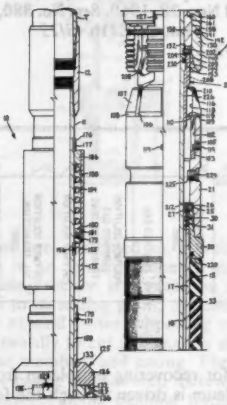
operable piston member engageable with said body member in response to fluid pressure tending to close said check valve means and with said check valve means in response to fluid pressure tending to open said check valve means and functioning to prevent opening movement of said check valve means, and means for selectively isolating said piston member from said last-mentioned fluid pressure to enable opening movement of said check valve means.

3,570,596

WELL PACKER AND HOLD DOWN MEANS

Carter R. Young, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Apr. 17, 1969, Ser. No. 816,939
Int. Cl. E21b *33/129*
U.S. Cl. 166—129 **19 Claims**



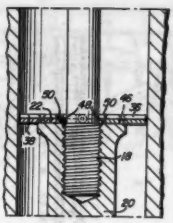
A resettable well packer having a body with expansible sealing means thereon; gripping means expansible for holding the sealing means against downward movement, a mandrel movable in said body; a setting member on the mandrel engageable with the body to expand the sealing means against said gripping means; and holddown lock means on said mandrel and body coacting with said gripping means to lock said body and sealing means against longitudinal movement in the well bore, and releasable and resettable to permit the packer to be anchored, released, and reset in different locations during a single trip. Said holddown means comprises expander means on said body normally resiliently held in expanding position, a locking sleeve movable with the mandrel to be engageable with said expander means to prevent movement thereof from said normal expanding position, and removable from such position to permit contraction of said expander means, and gripping means including a plurality of gripping slips on the mandrel movable into engagement with said expander means for expansion of said slips to gripping position, said locking sleeve preventing contraction of said expander means during expansion of said slips. Biasing means on the mandrel is movable to engage said gripping means for urging said gripping slips toward said expander means during movement of setting member to expand the sealing means, whereby the gripping slips are resiliently biased toward gripping position during expansion of the sealing means, and are positioned to grip and lock the packer against upward movement when the sealing means has been fully expanded, without damaging wear of the teeth of the gripping slips during such movement. A bypass flow passage between the body and mandrel is closable by sealable valve means on the setting member and body when the packer is set. Latch means on the mandrel and body holds said holddown means and sealing means in locking sealing position, and releasable means between said mandrel and latch means permits said mandrel to be moved to release said holddown locking means, seal means and gripping means for removal of the packer from the well bore if the latch means cannot be released.

3,570,597

PARAFFIN DRIVE SCRAPER

Levi J. Lack, 1841 16th St., Abilene, Tex.

Filed Mar. 10, 1969, Ser. No. 805,691
Int. Cl. E21b *37/02*
U.S. Cl. 166—174 **5 Claims**



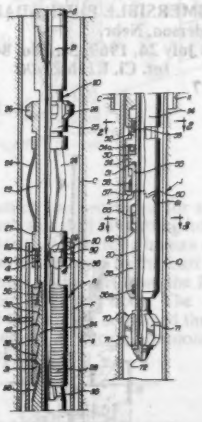
An elongated rod for lengthwise disposition and reciprocation in a well casing. The rod includes longitudinally spaced radially projecting abutments and an annular scraping member is loosely disposed on the rod for reciprocation thereon between the abutments. The annular scraping member includes a pair of half-annular sections pivotally joined together about aligned axes extending along a diameter of the scraping member and the half-sections are swingable between coplanar positions disposed generally in a plane normal to the centerline of the rod and folded positions with the free marginal portions of the half-sections swung toward each other.

3,570,598

CONSTANT STRAIN JAR

Glenn D. Johnson, 9730 Belder Drive, Downey, Calif.

Filed May 5, 1969, Ser. No. 821,581
Int. Cl. F21b *23/00*
U.S. Cl. 166—178 **8 Claims**



A jar for removing a fish from a well, in which a piston is moved in a chamber and then released to allow the hydrostatic pressure of fluid in the well to move the piston against an anvil.

Such a jar in which the piston is repeatedly shifted in response to rotation of the running in string of pipe.

3,570,599
LINER HANGER

Truman Foy Wilson; Fletcher Andrew Anderson, and Ben Rodney Groce, Odessa, Tex., assignors to Brown Well Service & Supply Company, Odessa, Tex.

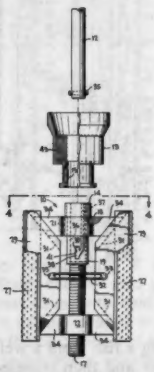
Filed June 11, 1969, Ser. No. 832,046
Int. Cl. E21b *23/00, 43/10*
U.S. Cl. 166—208 20 Claims

A liner hanger for down-hole suspension of a liner pipe from a well casing. Toothed slips are used to engage the casing wall when allowed to slide up over a conical slip expander. Bow springs attached to the slips frictionally engage the casing wall, and cause the slips to move up onto the slip expander when a latch mechanism is released. An hydraulically operated latch release device is disclosed, employing a sleeve biased away from the latches but forced toward the latches by hydraulic pressure. Control is provided by increasing the pressure in the tubing string compared to the annulus between the casing and the tubing. The latching arrangement may be both hydraulically and manually operated, according to one embodiment.

3,570,600
SUBMERSIBLE PUMP ADAPTER

Harry Wall, Henderson, Nebr.

Filed July 24, 1969, Ser. No. 844,512
Int. Cl. E21b *23/00*
U.S. Cl. 166—217 9 Claims

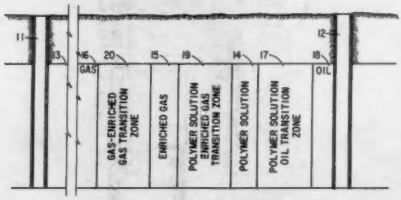


A submersible pump adaptor is provided for supporting the weight and torque of the pump at any prescribed depth along the length of a well casing. The adaptor comprises a threaded actuator shaft having a pair of well casing engaging shoes or holding elements mounted thereon by means of a pair of collars movable along the shaft so as to direct the shoes toward and away from the wall of the well casing. Each collar is provided with extensions having sloping surfaces in mating engagement with like surfaces on each of the shoes so that, as the collars are moved toward each other, the shoes are made to expand. The adaptor shaft is interconnected with the pump shaft in a manner whereby the holding engagement of the shoes is increased by the torque of the pump shaft.

3,570,601
RECOVERY OF OIL WITH VISCOUS PROPANE

Dwight L. Dauben; John C. Reed; Jack L. Shelton, and Lyman Yarborough, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.

Filed Nov. 28, 1969, Ser. No. 880,627
Int. Cl. E21b *43/22*
U.S. Cl. 166—273 7 Claims

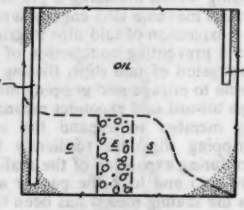


In a method for recovering petroleum from earth formations, the petroleum is driven through the formation by two banks of material followed by gas. The first bank is a solution of a solid polymer in a mixture of propane and a higher molecular-weight hydrocarbon. The second bank is an enriched gas miscible with the liquid components of the polymer solution.

3,570,602
SURFACTANT SOLUTION SECONDARY HYDROCARBON RECOVERY

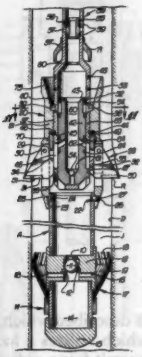
William G. Halbert, Jr., Butte, Mont., assignor to Tenneco Oil Company, Houston, Tex.

Filed Jan. 15, 1970, Ser. No. 003,098
Int. Cl. E21b *43/20, 43/22*
U.S. Cl. 166—273 9 Claims



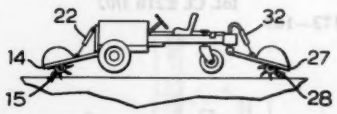
A method for secondary recovery of hydrocarbons from a formation penetrated by at least two well bores by utilizing a surfactant displacement flood followed by a caustic water flood. The surfactant of the first flood facilitates penetration of the formation, and the caustic water flood strips any adsorbed surfactant from the formation and inhibits dilution of the surfactant phase by the formation of an emulsion at the surfactant solution-caustic solution interface.

3,570,603
METHOD AND APPARATUS FOR CEMENTING CASING SECTIONS IN WELL BORES
Archer W. Kammerer, Jr., Fullerton, and Gary R. Johnson, Anaheim, Calif., assignors to Rotary Oil Tool Company, Buena Park, Calif.
Filed Oct. 7, 1968, Ser. No. 765,474
Int. Cl. E21b 33/14, 23/00
U.S. Cl. 166—290 35 Claims



Casing sections are cemented in a well bore between producing zones in an upward sequence starting from the bottom. Each casing section is lowered on a running string and running tool to its setting point, the casing section then being rotated to expand cutter supporting members carried by the casing outwardly to cut a formation shoulder for supporting the cutter members and casing. The running tool is released from the casing and lowered therewithin to the casing float shoe, cement being pumped through the running string, tool and shoe to cement the casing in place, the running string and tool being removed from the hole.

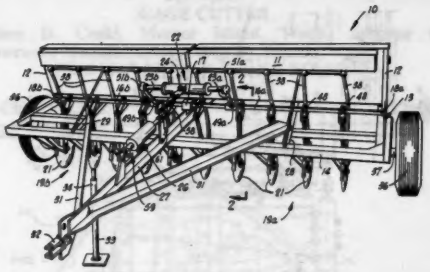
3,570,604
SOIL PENETRATING IMPLEMENTS
Patrick Leo Allard, 3439 Wolfdale Ave, Mississauga, Ontario, and Harry Allard, R.R. 4, Stouffville, Ontario, Canada
Filed Nov. 14, 1968, Ser. No. 775,808
Int. Cl. A01b 45/02
U.S. Cl. 172—22 6 Claims



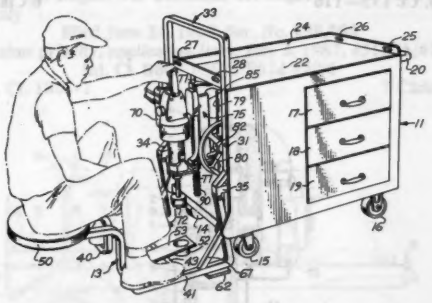
A soil penetrating implement on which spiking wheels are journaled on frames which are hingedly mounted to the front and rear of a vehicle and means are provided for swinging the frames downwardly to raise the vehicle frame upwardly and lift the vehicle wheels from the surface on which they are supported, thus causing the spikes to penetrate the said surface.

3,570,605
COMPENSATING LINKAGE
Eldon L. Rikli, R.R., Drummond, Okla.
Filed Apr. 14, 1969, Ser. No. 815,989
Int. Cl. A01b 21/08, 65/06
U.S. Cl. 172—580 4 Claims

The present invention envisions apparatus for rotating a pair of aligned shafts in equal arcs while allowing relative rotary motion of the shafts. In one embodiment, apparatus embodying the invention may comprise elongated linking means which has positioned on each end thereof a universal joint. An arm may be rigidly secured to each of the aligned rotary shafts and each of the arms thus secured may be operatively connected to one of the universal joints located at the end of the elongated linking means. A power assembly may be provided for moving the linking means in an arc about the parallel shafts thereby rotating the shafts. The power assembly is characterized by means for connecting a portion thereof with a central portion of the linking means in such a manner as to allow pivotal motion of the linking means relative to the power assembly. In addition, a portion of the power assembly is designed to allow limited universal motion of the elongated linking means about an axis normal to the longitudinal axis of the linking means.



3,570,606
PORTABLE TOOL MOUNT
Kenneth E. Guritz, 570 Emerald Harbor Drive, Sarasota, Fla.
Filed May 7, 1969, Ser. No. 822,435
Int. Cl. E21c 11/02
U.S. Cl. 173—23 5 Claims

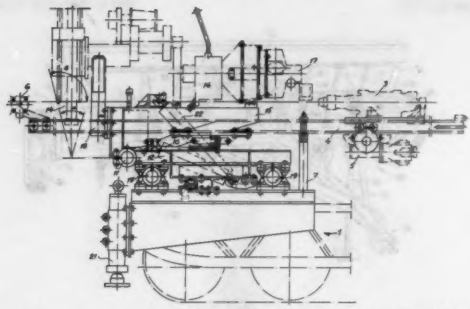


A wheeled cart which has provisions for mounting a surface working tool such as a drill for cutting holes in a floor of concrete or like material. A seat for a human operator is carried on a frame which is hinged to the cart and shaped to raise at least one wheel of the cart from the floor and to engage a frictional foot with the floor. The weights of the human operator and the cart are combined through mechanical advantage to effect a secure frictional relationship between the floor and the foot.

3,570,607
MOBILE DRILL-BORER
Kaarlo Heikki Juhani Wennervirta, and Heikki Veikko Aulanko, Outokumpu, Finland, assignors to Outokumpu Oy, Helsinki, Finland
Filed Mar. 14, 1969, Ser. No. 807,218
Int. Cl. E21c 11/02
U.S. Cl. 173—43 1 Claim

A mobile drill-borer for combined boring, drilling and sampling by which the boring can be changed to drilling and vice

versa in a single operation. The borer and the drill are prior known and fitted on a chassis slidable to and fro transversally between two end positions on a mobile carriage. Both the borer and the drill can be turned in the vertical plane by



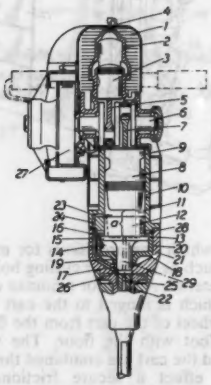
hydraulic cylinders. For transportation the borer is turned to a horizontal position. At least the borer and the drill have a common power source, for instance a compressor provided with a separate engine or connected to the engine of the carriage.

3,570,608

HAMMER MECHANISM FOR PERCUSSION TOOLS

Eero Antero Erma, Klinten, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Apr. 30, 1969, Ser. No. 821,554
Claims priority, application Sweden, May 8, 1968, 6221/68
Int. Cl. B25d *9/10, 11/06*
U.S. Cl. 173—116 **6 Claims**



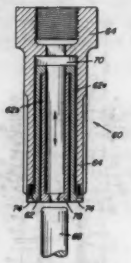
This invention relates to a hammer mechanism for percussion tools provided with a hammer piston for delivering blows to a percussion implement, and further provided with a hammer element arranged movable relatively to said hammer piston, said hammer piston being stopped during the upward movement thereof by said hammer element for delivering the kinetic energy of said hammer piston to said hammer element.

3,570,609

ACOUSTIC IMPACT DEVICE

Boyd A. Wise, Webster, N.Y., assignor to General Dynamics Corporation

Filed Nov. 14, 1968, Ser. No. 775,762
Int. Cl. B25d *17/06*
U.S. Cl. 173—126 **9 Claims**



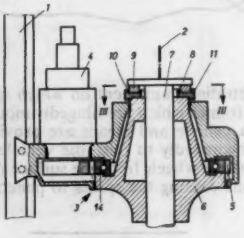
An impact device is described which is suitable for use in a precussive tool and which utilizes a hammer that impacts an anvil to efficiently transmit force pulses to a load such as the earth formation. The anvil system includes an impact hammer, an elastic spring member, drill steel and a bit. The required load force and load deflection are caused by a single force pulse of the proper force amplitude and time duration. The impact device elements and the load itself each have a mechanical impedance analogue which can be represented in a mechanical circuit. The Q of this circuit is selected to be between about 0.7 to 1.5 with the result that the transmitted force pulses are readily absorbed by the load with a minimum of reflection, while impact spring stress levels and velocities are both held to reasonable values. A folded spring configuration is described which permits the application of the present invention to relatively small pneumatic air tool devices.

3,570,610

DRILLING TABLES FOR SOIL DRILLING EQUIPMENT

Achim Kehrberger, Nellingen, Germany, assignor to Delmag-Maschinenfabrik Reinhold, Dornfeld, Esslingen, Germany

Filed Mar. 14, 1969, Ser. No. 807,284
Claims priority, application Germany, Mar. 22, 1968, D37836
Int. Cl. E21b *3/02*
U.S. Cl. 173—165 **4 Claims**

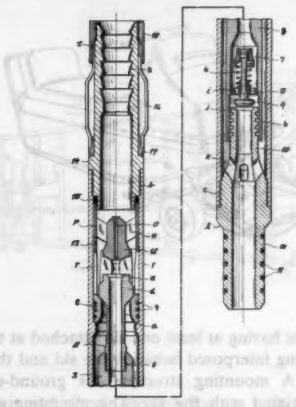


A drilling table for soil drilling equipment comprises a rotatable carrier device for a drill rod, and means for rotating the carrier device, damping means being provided at an upper surface of the carrier device and rotatable therewith for imparting rotary movement to the drill rod when carried by said damping means.

3,570,611
DEVICE FOR FREEING SEIZED DRILL STRINGS

Vladimir Riziuc, and Silvestru Huelscher, Pitesti, Romania, assignors to Trustul deForaj Pitesti, Pitesti, Romania

Filed Feb. 5, 1969, Ser. No. 796,829
Claims priority, application Romania, Feb. 9, 1968, 55,824
Int. Cl. E21b *1/00, 7/00*
U.S. Cl. 175—296 1 Claim



A device for freeing seized drill strings in which a longitudinally reciprocable valve controls up and down movement of a vibrating member imparting longitudinal shock to the drill string as controlled by the drilling fluid pressure. In addition, the longitudinally reciprocal member forms a valve in its casing to alternately block flow of drilling fluid and admit such flow to the lower part of the drill string whereby the pressure in the bore is alternately increased and decreased in the cadence of the longitudinal shock.

3,570,612
FLUID ACCELERATOR FOR USE WITH AN HYDRAULIC JAR IN A WELL

Damon T. Slator, Houston, Tex., assignor to Bowen Tools, Inc.

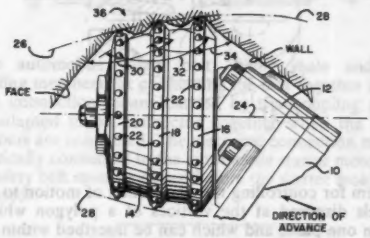
Filed Oct. 17, 1968, Ser. No. 768,363
Int. Cl. E21b *1/06*
U.S. Cl. 175—297 6 Claims

An accelerator for use with an hydraulic jar in a well for storing energy immediately above the jar and drill collars, including piston means for compressing a fluid on one side thereof to develop stored energy on the jarring stroke, and means for transferring fluid from the other side of the piston means to said one side thereof upon the return stroke of the jar.

3,570,613
GAGE CUTTER

William D. Coski, Mercer Island, Wash., assignor to Lawrence Manufacturing Company, Seattle, Wash.

Filed Mar. 27, 1969, Ser. No. 811,065
Int. Cl. E21b *9/12*
U.S. Cl. 175—374 8 Claims

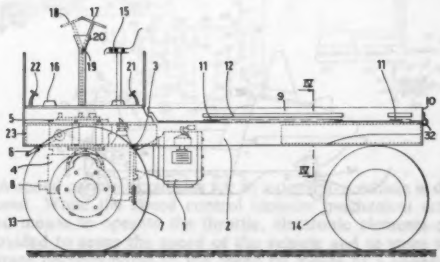


A gauge cutter for use with a tunneler or mine machine or the like having a plurality of rows of cutter elements about the periphery thereof, the rows being of such size and positioning as to define an oblate cylinder cutting envelope or plane to equalize the loading on the cutting elements.

3,570,614
SELF-PROPELLED VEHICLES WITH IMPLEMENT ATTACHMENT DEVICES

Isacco Del Bagno, Via Domenico del Bagnoli, Polla, Salerno, Italy

Filed June 21, 1968, Ser. No. 738,950
Claims priority, application Italy, July 3, 1967, 49110A/67
Int. Cl. B60k *17/28*; B62d *49/06*
U.S. Cl. 180—1 7 Claims



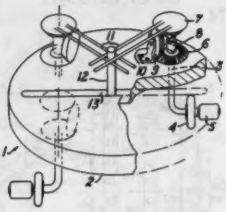
A self-propelled tool-carrying vehicle for agricultural and industrial purposes and having a frame formed of two longitudinal beams and a driving motor arranged between the longitudinal beams without projecting upwardly beyond the plane formed by the upper surface of the longitudinal beams. All other driving and transmission means except the control means are likewise located below said plane so that the longitudinal beams are free for attachment of working tools or a loading platform at both ends and sides. Additional longitudinal beams of smaller dimensions may be tiltably mounted on said longitudinal beams and provided on their underside with teeth to permit the attachment of the working tools. The main longitudinal beams may be provided with telescopic extensions to provide further possibilities for attachment of working tools.

3,570,615

SYSTEM FOR CONTROLLING THE APPLICATION OF MOTION OF VEHICLE WHEELS

Jean-Pierre Guilbaud, Jouars Ponchartrain, and Jean Vertut, Paris, France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Apr. 2, 1969, Ser. No. 812,682
Claims priority, application France, Apr. 9, 1968, 147,475
Int. Cl. B601 *15/00*
U.S. Cl. 180—1 3 Claims



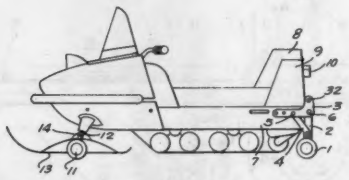
A system for controlling the application of motion to vehicle wheels disposed at the vertices of a polygon which is located in one plane and which can be inscribed within a so-called base circle, each wheel being associated with means for individual driving about its rotational axis. Any two adjacent wheels are driven with a speed ratio corresponding to the ratio of the lengths of straight line segments cut on the chord of the base circle which joins the pivotal axis of the two wheels by the line bisecting the angle defined by the two directions which connect the center of rotation to the two axes in said plane.

3,570,616

REAR WHEEL DEVICE FOR SNOWMOBILES

Yoshiaki Tominaga, Hamakita-shi, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Japan

Filed Apr. 1, 1969, Ser. No. 812,278
Claims priority, application Japan, Apr. 4, 1968, 43/26,923
Int. Cl. B62d *55/02*
U.S. Cl. 180—5 16 Claims



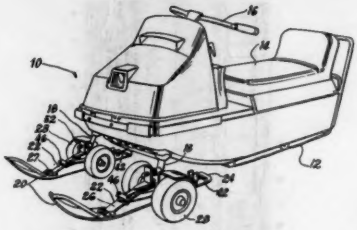
A rear wheel device, for a snowmobile having a power-driven endless track, a steerable ski and an optionally attachable front wheel device, characterized by a pair of brackets secured to the rear of the sides of the snowmobile, a pair of wheel-carrying upright members pivotally mounted on said brackets, and a pair of brace bars, each pivotally secured to said upright members and removably attachable to different parts of said brackets. Said pair of wheels on the uprights, when in ground-engaging position, enabling the rear of the snowmobile and the endless track to be elevated above ground and, therefore, warmed up in advance of operation. The rear wheels, in combination with the front wheel device, enabling the snowmobile to be readily transported on snowless terrain. The uprights carrying the rear wheels may be positioned in horizontal or vertical orientations for towing persons or articles and protecting the rear of the snowmobile while running over snow-covered ground.

3,570,617

SNOWMOBILE WITH GROUND-ENGAGING WHEELS

Leroy George O'Day, Wheeling, Ill., assignor to Ski-Wheels, Inc., Barrington, Ill.

Filed Aug. 1, 1969, Ser. No. 846,763
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 7 Claims



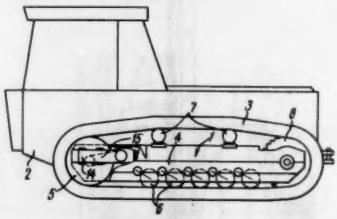
A snowmobile having at least one ski attached at the front with a leaf spring interposed between the ski and the snowmobile body. A mounting structure for ground-engaging wheels is associated with the ski. The mounting structure comprises a second leaf spring secured at opposite ends to the first-mentioned leaf spring. The wheels associated with the second leaf spring extends downwardly below the bottom surface of the associated ski so that the wheels will provide support in the absence of snow cover sufficient to transfer support to the ski.

3,570,618

RUNNING GEAR FOR ENDLESS TRACK TRACTORS

Jury Petrovich Samatov, Prospert Lenina, 22, kv.30; Ellen Robertovna Melman, Nakhimova, 129 kv.14; Vladimir Vasilievich Emelianenko, Turistov, 106, kv.39, and Boris Mikhailovich Pozin, Diskovy per., 36, kv.13, Chelyabinsky, U.S.S.R.

Filed Sept. 18, 1968, Ser. No. 760,421
Int. Cl. B62d *55/16*
U.S. Cl. 180—9.5 5 Claims



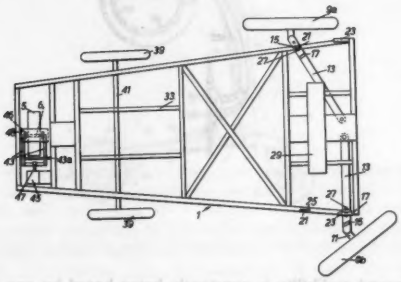
An endless track tractor has a running gear which comprises a tractor frame with side equalizers hinge-connected to one another and to the frame, the equalizers carrying resilient track support rollers. Also mounted on the equalizers are guiding idler wheels and these idler wheels are resiliently supported through the intermediary of an arm connected to a torsion bar pipe which is mounted in a support slidable along the beams of the side equalizers.

3,570,619

WHEEL ASSEMBLIES FOR JIB CRANES OR EXCAVATORS

Ronald Taylor, Eskdale Mills, Langholm, Dumfriesshire, England

Filed Aug. 26, 1968, Ser. No. 755,107
Claims priority, application Great Britain, Aug. 26, 1967, 39,341/67
Int. Cl. B62d *61/10*
U.S. Cl. 180—22 5 Claims



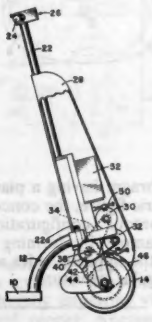
A chassis and wheel assembly for use with a crane, the assembly having at least a front wheel and a pair of rear wheels. In one position of the wheels, the crane is set for longitudinal travel, and in a second position the crane can slew. The spacing between the rear wheels which, on the rod, is limited by law, can be increased on site to increase side to side stability of the crane, while maximum fore and aft stability is obtained due to the position of the axis of the rear wheels when the spacing is so increased.

3,570,620

ELECTRICALLY POWERED VEHICLE

Gene L. Fisher, Freeland, and Allan R. Thieme, Bridgeport, Mich., assignors to said Fisher assignor to said Thiene

Filed Jan. 15, 1969, Ser. No. 791,462
Int. Cl. B60l *11/18*
U.S. Cl. 180—26 26 Claims



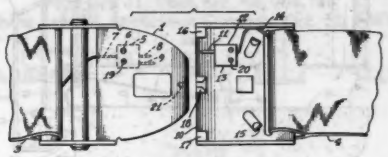
An electrically powered land vehicle and method of controlling same through the use of two electric motors which may be operated in series or parallel with provisions for one motor to be operated independently through a new and improved switch means.

3,570,621

SAFETY BELT BUCKLE WITH ELECTRICAL CONNECTOR

Robert O. Hampton, 117 E. St, SE Apt 201, Washington, D.C.

Filed Mar. 14, 1969, Ser. No. 807,454
Int. Cl. B60k *27/08*
U.S. Cl. 180—82 2 Claims



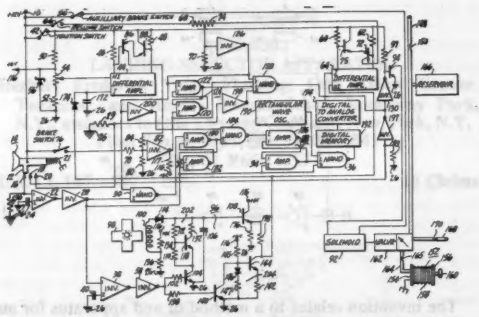
An automobile safety belt having male and female coupling members for connecting the belt together and electrical connection means carried by the coupling members and adapted to be connected together when the coupling members are connected. The electrical connection means are electrically connected to the automobile starter motor so that the safety belt must be closed before the starter motor can be operated.

3,570,622

SPEED CONTROL FOR MOTOR VEHICLES

Daniel A. Wisner, North Adams, Mich., assignor to RCA Corporation

Filed Dec. 27, 1968, Ser. No. 787,348
Int. Cl. B60k *31/00*
U.S. Cl. 180—105 4 Claims



A speed control apparatus for an automotive vehicle is disclosed. While the speed control includes mechanical actuated means to operate the throttle, electronic elements are provided to sense the speed of the vehicle and to store the voltage corresponding to the speed by means of a counting device. Means are also provided to cause the mechanically actuated means to adjust the position of the throttle to keep the speed of the vehicle at the desired value, and to deactivate the speed control apparatus upon depressing the brake pedal, and to reactivate the speed control apparatus when desired, and also to increase or decrease the desired speed.

3,570,623

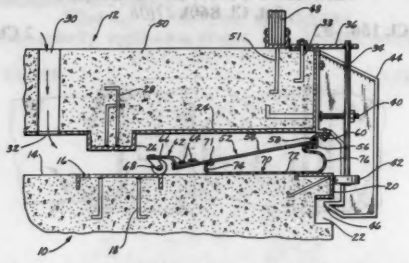
PERIMETER SEAL FOR AIR CELLS

Walter D. Behlen, Columbus, Nebr., assignor to Behlen Manufacturing Company

Filed Jan. 13, 1969, Ser. No. 790,704
Int. Cl. B60v *1/16*
U.S. Cl. 180—127 7 Claims

A perimeter seal for load-lifting air cells including a top sheet having an outer end operatively connected to the load

being raised by the air cell. A seal member is secured to and positioned below the top sheet and engages the supporting surface to limit the amount of air passing outwardly of the air cell. One or more wheel assemblies are operatively connected to the inner ends of the seal member and top sheet to maintain the inner end of the seal member at a predetermined height with respect to the supporting surface as the air cell is employed to raise the load from its supporting surface.

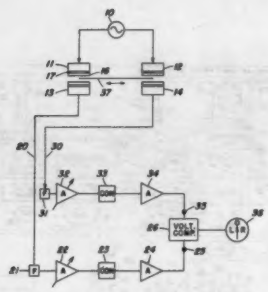


3,570,624

WEB TRACKING AND CONTROL

Ward F. O'Connor, Denville, N.J., assignor to The Lummus Company, New York, N.Y.

Filed June 27, 1966, Ser. No. 560,713
Int. Cl. B65h *25/02*
U.S. Cl. 181—0.5 **8 Claims**



The invention relates to a method of and apparatus for automatically measuring the sideway displacement of a continuous web. In accordance with the invention, one or more sound wave paths which are variably attenuated by sideway displacement of one or more edges of a continuous and moving web are used to automatically measure the amount and direction of such sideway displacement of the web. In one of the embodiments, two sound wave paths are each translated into separate electrical voltages having a magnitude corresponding to the magnitude of the sound wave and a polarity identifying the particular sound path. The difference in the magnitudes of the voltages and the polarity thereof are measured to indicate the amount and direction respectively, of the sideway displacement of the web.

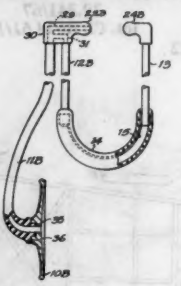
3,570,625

STETHOSCOPE WITH HIGH INTENSITY AUDIO OUTPUT

Derek R. Allen, Montrose, Calif., assignor to Allen Medical Instruments Division of Bio-Dynamics, Inc., Montrose, Calif.

Filed Sept. 8, 1969, Ser. No. 856,015
Int. Cl. A61b *7/02*
U.S. Cl. 181—24 **10 Claims**

A stethoscope providing sound transmission air columns of unequal lengths such that sounds are delivered to respective ear tips with their resonance curves so related that sound of improved audibility is constantly being heard by one ear or the other.

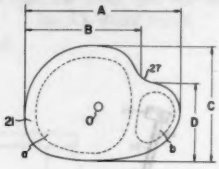


3,570,626

LOUDSPEAKER WITH ASYMMETRICALLY SHAPED DIAPHRAGM

Yasunori Mochida; Ikuji Kurokawa, and Kazukiyo Ishimura, Hamamatsu-shi, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-Cho, Hamamatsu-shi, Shizuoka-Ken, Japan

Continuation of application Ser. No. 584,825, Oct. 6, 1966, now abandoned. This application Nov. 18, 1969, Ser. No. 871,684
Int. Cl. G10k *13/00;* **H04r** *7/00*
U.S. Cl. 181—32 **4 Claims**



A vibrating diaphragm having a planar shape which is an asymmetric geometric figure, the concept being improved by modifying the contour configuration of the vibrating diaphragm, for example by forming the contour of said diaphragm so that the opposite sides are not parallel or said contour has an irregular curvature.

3,570,627

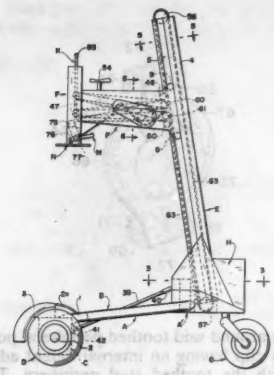
POWER LADDER WITH A TOWER AND A CARRIAGE MOVABLE THEREON

Yigal Michelson, P.O. Box 71, Pardess-Hanna, Israel

Filed Jan. 10, 1969, Ser. No. 790,245
Int. Cl. E04g *1/18*
U.S. Cl. 182—148 **6 Claims**

A power ladder movable over the ground and supporting a tower on which a carriage is movably mounted. The carriage

supports an operator and it has control units that can be manipulated by the operator for raising and lowering it and

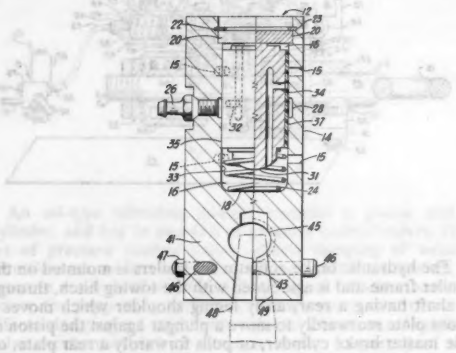


for holding it at any desired elevation along the length of the tower.

3,570,628
APPARATUS FOR LUBRICATING PNEUMATIC RAPPERS

Charles H. Rodgers, Sykesville, Md., assignor to Koppers Company, Inc.

Filed Apr. 30, 1969, Ser. No. 820,591
Int. Cl. F16n *15/02*
U.S. Cl. 184—24 **7 Claims**

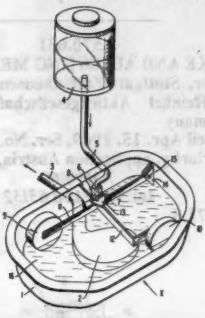


A pneumatically operated rapper including a piston reciprocable within a cylinder adapted to strike an anvil within said cylinder thereby imparting vibrations to a structure connected to said rapper, wherein the improvement comprises providing said piston and said cylinder of dissimilar materials of which one material possesses dry lubricating properties and one of said dissimilar materials is covered with a thin film of low friction material which is erodable by abrasion between said piston and said cylinder to form microscopic particles for coaction with said dry-lubricating material, thereby conditioning the coacting surfaces of the piston and cylinder for reduced friction and continuous dry-lubrication thereof.

3,570,629
INSTALLATION FOR THE AUTOMATIC REFILLING OF LUBRICATING OIL

Wolfram Dahm, Raidwangen Kreis Nurtingen; Erhard Melcher, Grobaspach Wurttemberg; Klaus Nied, Schmiden Wurttemberg; Alfons Hackenberg, Ruit, Filder, and Ladislaus Weber, Schorndorf, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 11, 1968, Ser. No. 766,746
Claims priority, application Germany, Oct. 12, 1967, P 15 76 367.4
Int. Cl. F01m *11/12*
U.S. Cl. 184—103 **17 Claims**

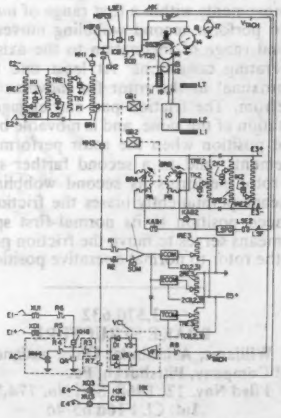


An installation for the automatic refilling of lubricating oil from a supply vessel into the oil pan of internal combustion engines in which two floats are secured at a pivotal lever linkage which actuates a needle valve controlling the supply of the oil from the vessel into the pan.

3,570,630
LANDING SELECTOR APPARATUS

Herbert Frederick Voigt, Flushing; Otto Albert Krauer, Tuckahoe, and Harvey Ronald Schor, Rockaway Park, N.Y., assignors to Otis Elevator Company, New York, N.Y.

Filed Feb. 3, 1969, Ser. No. 795,841
Int. Cl. B66b *1/52*
U.S. Cl. 187—29 **14 Claims**



Landing selector apparatus for use in an elevator control system. An output voltage whose magnitude signifies the location of the car in the hoistway is added to a voltage whose magnitude is a function of the distance required to stop the car from the speed at which it is traveling. The magnitude of

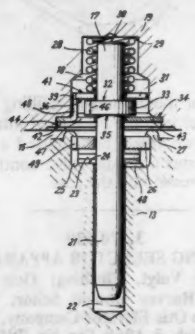
the sum of these two voltages is compared with the magnitudes of discrete voltages proportional to the locations of the landings to scan the landings to determine that at which the next stop will be made. Upon the receipt of a signal that a stop is required at a landing being scanned that landing is selected and a signal suitable to control the deceleration of the car as a function of its distance from the selected landing is produced in response to the difference between a signal signifying the location of the selected landing and a signal signifying the location of the car. When the car approaches within a predetermined distance of the selected landing equipment which functions in the same way but which measures the distance between the car and the selected landing more accurately than the foregoing is used to control the final approach of the car to a stop.

3,570,631

DISC BRAKE AND ADJUSTING MEANS THEREFOR

Erich Schaftner, Stuttgart-Zuffenhausen, Germany, assignor to Ernst Heinkel Aktiengesellschaft, Stuttgart-Zuffenhausen, Germany

Filed Apr. 15, 1969, Ser. No. 816,259
Claims priority, application Austria, Apr. 16, 1968, A3690/68
Int. Cl. F16d *65/52*
U.S. Cl. 188—71.8 **10 Claims**



A disc brake includes a rotor which is mounted for rotation about an axis in such a manner that under normal operating conditions the rotor has freedom to perform first wobbling movements within a first range of inclination to the axis, and to perform second wobbling movements within a larger second range of inclination to the axis under special second operating conditions. At least one friction pad is mounted proximal to the rotor for movement towards and away therefrom. The friction pad can engage the rotor for braking rotation of the same, and is movable by the rotor to a first spaced position when the rotor performs its first wobbling movements, and to a second farther spaced position when the rotor performs its second wobbling movements. Biassing means permanently biases the friction pad from its second spaced position to its normal first spaced position. Actuating means serves to move the friction pad into engagement with the rotor to normal operative position.

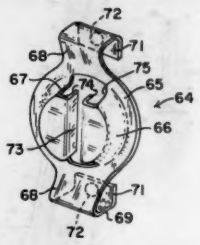
3,570,632

BRAKE STRUCTURE

William J. Williams, Ashtabula, Ohio, assignor to Rockwell-Standard Company, Pittsburgh, Pa.

Filed Nov. 12, 1968, Ser. No. 774,874
Int. Cl. F16d *65/46*
U.S. Cl. 188—79.5 **7 Claims**

In a brake assembly a special locking retainer is disposed between an end of a brakeshoe web and the abutting outer end of a threaded stud rotatably carried by an actuator and comprising part of the brakeshoe adjustment mechanism. The stud is rotatably mounted on the actuator assembly and has a toothed peripheral portion at its outer end. The retainer is a one piece stamping of resilient sheet metal having a slotted end boss for seating on the stud and nonrotatably receiving the brakeshoe end and opposed radial arms reversely bent to form substantially U-shaped resilient clips extending around said toothed peripheral portion of the stud with each clip having an internal detent adapted to be interlocked with the toothed stud periphery. The retainer holds the stud against rotation during automatic brake adjustment, but permits stud rotation for manual brake adjustment.

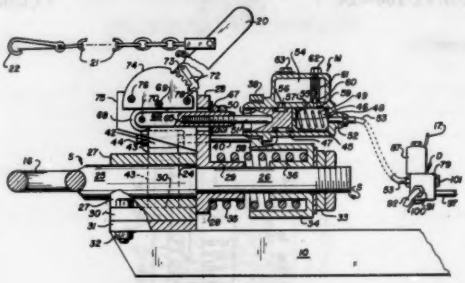


3,570,633

HYDRAULIC BRAKE ACTUATOR FOR TRAILERS

Edward V. Garnett, Lakewood, Colo., assignor to Servis Truck Body, Division of Republic Corporation, Paramount, Calif.

Filed Nov. 8, 1968, Ser. No. 774,330
Int. Cl. B60t *7/20*
U.S. Cl. 188—112 **7 Claims**



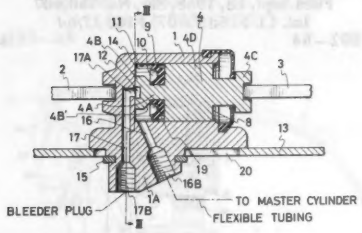
The hydraulic brake actuator for trailers is mounted on the trailer frame and is associated with the towing hitch, through a shaft having a rearwardly facing shoulder which moves a front plate rearwardly to move a plunger against the piston of the master brake cylinder, or pulls forwardly a rear plate, on which the master cylinder is mounted, with a coil spring acting between the front and rear plates. Thus, hydraulic fluid pressure for the trailer brakes will be produced when the towing vehicle is moving either forwardly or backing up and the vehicle brakes are applied. A solenoid control valve in the hydraulic fluid circuit normally prevents application of the trailer brakes, unless the towing vehicle brakes are applied, through connection of the solenoid with the stop light circuit of the towing vehicle. A lever connected by a safety chain to the towing vehicle will move the plunger into the master cylinder, to apply the trailer brakes in the event of the failure of the hitch, through a pressure responsive valve in parallel with the solenoid valve but opening only when a higher pressure than normal of the hydraulic fluid is produced. A relief valve between the master cylinder and a fluid reservoir prevents breakage of the hydraulic lines on the trailer or parts associated therewith.

3,570,634

HYDRAULIC BRAKE ASSEMBLY FOR AUTOMOBILES

Takekazu Yamamoto, Kariya City, Aichi, Japan, assignor to Aisin Seiki Company Limited, Kariya City Aichi Pref, Japan

Filed June 18, 1969, Ser. No. 834,386
Claims priority, application Japan, June 25, 1968, 43/54304
Int. Cl. B60t *11/30*
U.S. Cl. 188—152 4 Claims



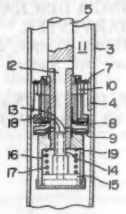
Hydraulic brake assembly for automobiles, wherein two channels for fluid supply and air expelling are arranged in a lug of the cylinder. The fluid entering through the liquid supply channel expels any air from the cylinder bore through the air-expelling passage.

3,570,635

OIL-TYPE VIBRATION DAMPER

Tatsuya Takagi, No. 6-10, Araebisu-machi, Nishinomiya-shi, Hyogo-ken, Japan

Filed June 19, 1968, Ser. No. 738,281
Claims priority, application Japan, Dec. 11, 1967, Jan. 10, 1968, Mar. 27, 1968, 42-79345;43-1228;43-19435
Int. Cl. F16f *9/348*
U.S. Cl. 188—88 5 Claims



An oil-type vibration damper includes a piston and a cylinder, and one or two sets of pressure control valves. One set of pressure control valves effects damping of vehicle vibrations above the supporting springs, and the other set of pressure control valves effects damping of vehicle vibrations below the supporting springs or one pressure control valve effects damping of said both vehicle vibrations. A switch valve mechanism detects changes in the frequency of the vibrations to automatically act on one or the two sets of pressure control valves in accordance with the frequency of the vibrations.

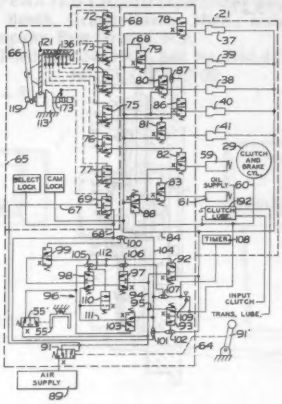
3,570,636

PNEUMATIC SHIFT CONTROL FOR A MECHANICAL TRANSMISSION

Maurice F. Franz, East Peoria; Le Roy Lichtenstein; Philip S. Webber, Morton; Alexander C. Mc Intosh, Peoria, Ill., and Elmer A. Richards, Kalamazoo, Mich., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 24, 1969, Ser. No. 801,405
Int. Cl. F16d *67/00;* F16h *3/12*
U.S. Cl. 192—3.5 15 Claims

A transmission having both input and output clutches, together with a brake for stopping the change speed gearing to facilitate speed ratio changes is shifted by means of pneumatic actuators under the automatic control of a fluid circuit which is responsive to manual movement of a remotely situated control lever. The control lever is moved along an arc to select a speed range and carries an array of cams along a series of cam operated valves to condition the circuit to operate the appropriate actuators within the transmission in the proper sequence. Sideward movement of the control lever then pneumatically energizes the system to effect the selected shift.

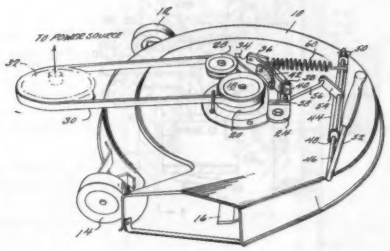


3,570,637

BLADE DRIVE AND BRAKING ARRANGEMENT FOR A ROTARY LAWN MOWER

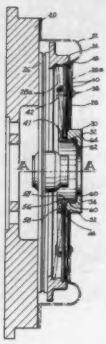
Donald L. Pitman; Gilbert B. Hahn, and Martin J. Gencsi, Nashville, Tenn., assignors to The Murray Ohio Manufacturing Company, Nashville, Tenn.

Filed Dec. 4, 1968, Ser. No. 781,218
Int. Cl. F16h *57/10*
U.S. Cl. 192—11 3 Claims



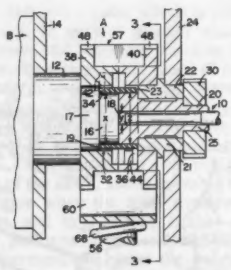
A system for driving and braking a blade in a rotary lawn mower. An arm is pivotally connected to a blade housing. The free end of the arm carries an idler pulley which, on rotation of the arm in one direction, is moved to tension a belt which also passes about a drive pulley and a pulley connected to the blade. The belt tensioning causes the blade to be driven. On rotation of the arm in the opposite direction, the belt tension is released and a brakeshoe carried on the arm engages the blade pulley to terminate blade rotation. Direction of rotation of the arm is controlled by a mechanical linkage from an operator's lever.

3,570,638
DIAPHRAGM SPRING CLUTCH ASSEMBLY
Peter F. Baker, Benarth, Conway, Wales, assignor to Quinton Hazell (Holdings) Limited, North Wales, Great Britain
Filed Apr. 30, 1969, Ser. No. 820,496
Claims priority, application Great Britain, May 3, 1968, 20999/68
Int. Cl. F16d *13/50*
U.S. Cl. 192—70.27 **12 Claims**



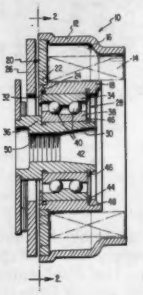
A friction clutch diaphragm spring having radially inwardly extending fingers at least one of which is deformed at its inner end so that the inner ends of the fingers can bear simultaneously on opposite sides of a groove in a thrust means to prevent vibration between the diaphragm spring and the thrust means and thus prevent rattling occurring at least when the clutch is in the engaged position.

3,570,639
SOLENOID-OPERATED SPRING CLUTCH
Gary D. Fredell, East Moline, and Frederick E. Erickson, Port Byron, Ill., assignors to Gulf & Western Industries, New York, N.Y.
Filed Apr. 10, 1969, Ser. No. 814,952
Int. Cl. F16d *11/06;* **B16d** *13/08*
U.S. Cl. 192—81 **6 Claims**



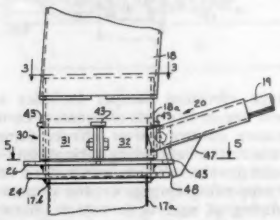
A clutch mechanism including a drive shaft with first and second segments integral with each other, the first segment having a diameter greater than the diameter of the second segment. Coaxially supported on the second segment is a driven drum having another diameter substantially equal to the diameter of the first segment and adjacent thereto with a bearing coaxially disposed about a longitudinal portion of the driven drum. There is further provided a coiled spring having opposing free ends coaxially wrapped about adjacent portions of the first segment and the drum, the spring having an internal diameter sufficiently small relative to the diameters of the first segment and the drum that the spring is normally in resilient gripping relationship with the first segment and the drum, whereby the drive shaft transmits rotational forces to the drum. The free ends of the spring are concurrently engaged and rotated in opposite directions by clutch release means, whereby the internal diameter of the spring is sufficiently increased to release its gripping relationship with the first segment and the drum to prevent the transmission of rotational forces from the drive shaft to the drum.

3,570,640
CLUTCH BEARING ASSEMBLY
Roger G. Martz, Lebanon, Ind., assignor to Stewart-Warner Corporation, Chicago, Ill.
Filed Sept. 18, 1968, Ser. No. 760,607
Int. Cl. F16d *27/07;* **F16c** *33/64*
U.S. Cl. 192—84 **4 Claims**



An electromagnetic clutch employing a unitary inner ball bearing race member and shaft coupler and a concentric, unitary, outer ball bearing race member and driving friction plate support and electron beam welded to the friction plate which eliminates the need for separate snaprings, bearing sleeve and armature hub while reducing overall size without compromising load capacity.

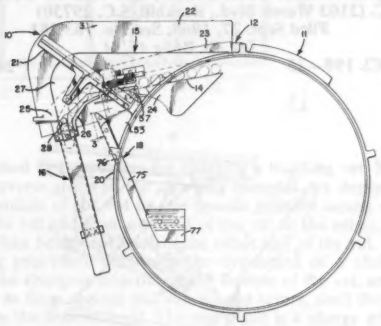
3,570,641
LOCKING AND POSITIONING MECHANISM FOR SELECTIVELY SETTING A DISCHARGE SPOUT OF A HARVESTER
Alain P. Lefeuvre, Lez Dijon, France, and Loren G. Sadler, Stevens, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.
Filed Aug. 27, 1969, Ser. No. 855,076
Int. Cl. B65g *53/40*
U.S. Cl. 193—4 **7 Claims**



A locking and positioning mechanism has a lower radially extending annular flange on the lower vertical stationary discharge conduit of a forage harvester and an upper radially extending angular flange on a discharge spout telescopically and rotatably mounted on the lower discharge conduit and extending outwardly further than the lower flange. A strap rotatably fits around the spout immediately above the upper flange and pivotally supports a generally radially extending yoke with a long handle for freely moving the strap around the spout. The handle is attached to the yoke to pivot vertically and has a downwardly extending latch. The latch fits in circumferentially spaced notches in the upper flange to rotate the spout and on further lowering of the handle the latch fits into one of a larger number of circumferentially

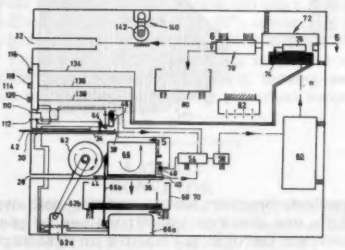
spaced notches in the second flange over an arc corresponding to the space between the upper notches to lock the spout in a selected fixed position for directing chopped crops from the forage harvester in the selected direction.

3,570,642
CAP CONVEYING CHUTE WITH SORTING MEANS
James L. Shenoha, Oak Lawn, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Dec. 4, 1968, Ser. No. 781,146
Int. Cl. B65g *11/20*
U.S. Cl. 193—43 **11 Claims**



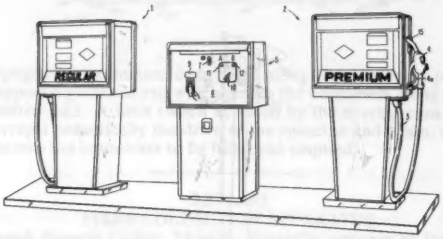
A chute for feeding closure caps for jars, or similar containers, to cap applying apparatus, or the like, which has an inverted L-shaped upper end disposed in downwardly inclined relation for receiving caps in a line from the upper side of a supply hopper and for advancing the caps by gravity and the pressure of oncoming caps along a generally horizontal top portion and then down a vertical portion leading to the cap applying apparatus, the top portion of the chute having an opening in the lowermost side through which caps may be discharged into a chute leading back to the hopper and a cap selector mechanism at the opening which is operative to automatically hold for advance past the discharge opening the caps which are positioned with the open side thereof uppermost while freeing caps which are positioned with the open side down so that they may be forced through the discharge opening and returned to the supply hopper, the upside down caps continuing into the vertical portion of the chute which is constructed to turn each successive cap to a right side up position for application to the top of a container in a processing line.

3,570,643
RECORD CARRIER CONTROLLED MONEY DISPENSING APPARATUS
Heinz F. Maierhofer, Unterkochen/Wurttemberg, Germany, assignor to Ostertag-Werke AG, Aalen Wurttemberg, Germany
Filed Nov. 20, 1968, Ser. No. 777,328
Int. Cl. G07f *1/06*
U.S. Cl. 194—4 **23 Claims**



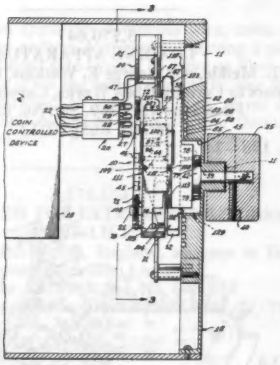
A money-dispensing apparatus dispenses an amount of money in accordance with recordings on an inserted withdrawal record carrier only if an identifying record carrier assigned to a specific account is simultaneously inserted. The record carriers are sensed, and the sensed information compared with information contained in a center storage in order to prevent fraudulent or erroneous withdrawal of money.

3,570,644
MONEY-OPERATED LIQUID DISPENSING APPARATUS
William M. Booth, Grand Haven, Mich., assignor to John Wood Company, East Orange, N.J.
Filed July 24, 1969, Ser. No. 844,447
Int. Cl. G07f *13/00*
U.S. Cl. 194—5 **6 Claims**



Money operated dispensing equipment for dispensing fluids, e.g., gasoline, etc., from self-serving fluid dispensers located, for example, at an automobile service station of the well-known type. A console controls plural dispensers simultaneously, and a control unit in each dispenser stores and removes credit independently of the console.

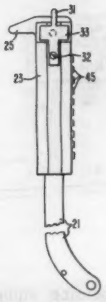
3,570,645
COIN CHECKING MECHANISM
Manuel J. Fernandez, 7009 Maynard Ave., Canoga Park, Calif.
Filed Nov. 21, 1968, Ser. No. 777,829
Int. Cl. G07f *5/00*
U.S. Cl. 194—72 **16 Claims**



A coin-checking mechanism incorporated in a coin-controlled vending machine and having a rotary carrier with a gauging slide thereon for receiving coins and moving the same along a cam which displaces the coin and the slide radially according to the coin diameter; an actuating lever displaced with the slide and carrying a tab along spaced gauging tracks into which the tab is movable when aligned therewith; a magnet carried on a rocker for movement toward a slug on the slide; and a feeler on a second rocker moved toward the coin on the slide; each rocker having a blocking element which prevents movement of the actuating tab into an aligned track when a washer or a magnetic slug is sensed.

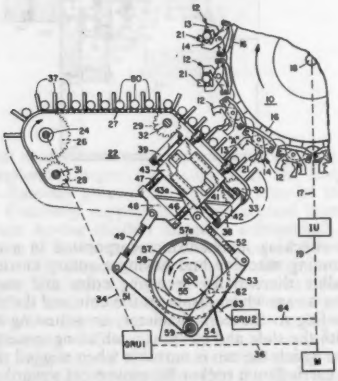
Also included in an inertia-operated element for interlocking with the housing in response to excessively rapid motion of the carrier.

3,570,646
CONVERTIBLE TYPE CARRIER
Kenneth George Gray McGregor, Bonhill, Alexandria, Scotland, assignor to Burroughs Corporation, Detroit, Mich.
Filed Mar. 5, 1968, Ser. No. 710,500
Claims priority, application Great Britain, June 27, 1967, 29649/67
Int. Cl. B41j *1/02*
U.S. Cl. 197—36 **2 Claims**



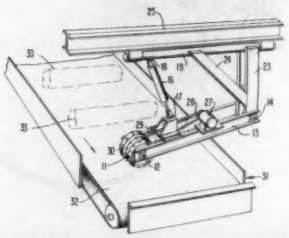
Various well-known printing calculators are provided with type carriers having a plurality of rigidly attached type characters of predetermined value or significance, such type carriers being differentially positionable to bring selected type into printing position, and either movingly or arrestingly activatable to effectuate printing on a paper tape or record medium. A type carrier suitable for use in such printing calculators is provided with a shank portion and an attachable and detachable head portion having a particular combination of type characters integral therewith. By this means type characters corresponding to changed requirements may be installed conveniently in the various printing orders without removing the carriers from the printing means.

3,570,647
LOADING APPARATUS
Robert L. Meikle, and George E. Watkins, Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed June 13, 1969, Ser. No. 833,114
Int. Cl. B65g *47/52*
U.S. Cl. 198—24 **4 Claims**



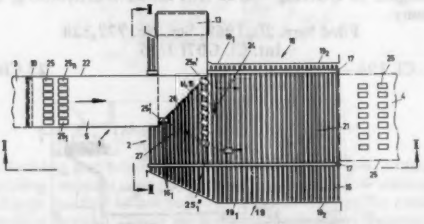
Apparatus for loading two at a time workpieces or articles such as tubes or rods of substantially identical diameters and lengths into chucks carried on a pair of spaced apart and vertical turrets which intermittently move or index the workpieces or articles through a vertically circular path of travel including a series of stations at which work such as end-forming is performed on the workpieces. Apparatus provides for said loading of the workpieces or articles at a substantially higher speed than heretofore attainable by loading apparatus used for similar purposes.

3,570,648
BLOCK FEEDING APPARATUS
Tillman B. Gillespie, Jr., Bradley, Tenn. (1105 Wagner Circle, Cleverland, Tenn. 37040), and Dale H. Dove, York, S.C. (2103 Marett Blvd., Rockhill, S.C. 29730)
Filed Sept. 27, 1968, Ser. No. 763,281
Int. Cl. B65g *47/34*
U.S. Cl. 198—25 **24 Claims**



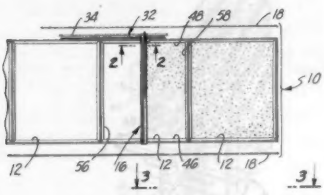
A feeding apparatus for propelling blocks, such as logs, from a moving conveyor or a stationary rack loaded with such logs. A single spike roll or a pair of spike rolls are moved against a log momentarily to flick the log in the direction of roll rotation. The momentary frictional engagement of the spiked roll against the top of the log is greater than the sliding friction of the log against the conveyor or the logs therebelow, so as to separate the log from its support.

3,570,649
CONVEYOR ARRANGEMENT FOR CHANGING THE SPACING BETWEEN THE OBJECTS OF A ROW
Rene Fluck, Neuhausen am Rheinfall, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed Sept. 15, 1969, Ser. No. 857,736
Claims priority, application Switzerland, Oct. 14, 1968, 15353/68
Int. Cl. B65g *47/26*
U.S. Cl. 198—34 **12 Claims**



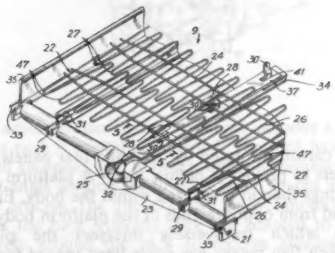
Two endless conveyors have a common path over part of their length, one conveyor transferring one by one onto the other conveyor the objects of a row at right angles to the direction of conveyance, and one of the two conveyors being composed of transverse bars or rods made to move along their length to increase or to decrease the spacing between the objects of a row.

3,570,650
METHOD OF CHARGING LEACHING VATS
Walter M. Parsons, San Marino, Calif., assignor to American Hoist & Derrick Company, St. Paul, Minn.
Filed Nov. 21, 1968, Ser. No. 777,673
Int. Cl. B65g 37/00
U.S. Cl. 198—101 2 Claims



A method and apparatus for charging a leaching vat. Shallow transverse strips of the charging material are deposited on the bottom of the vat in side-by-side relation across one-half of the vat and from one end of the vat to the other, this process then being repeated for the other half of the vat. The foregoing procedure results in the deposition of a shallow layer of the charging material on the bottom of the vat, and is repeated to form second and subsequent layers, until the vat is filled to the desired level. The end result is a charge which is substantially uniform throughout the vat, with substantially no impervious concentrations of fines.

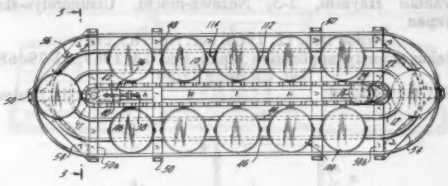
3,570,651
CONVEYOR SYSTEM
William E. Lanham, 3456 Woods Drive; Gene C. Miller, 3540 Woods Drive, and William E. Lanham, Jr., 3044 Katherine Valley Road, Decatur, Ga.
Original application Nov. 10, 1966, Ser. No. 593,504, now Patent No. 3,440,973, which is a continuation of application Ser. No. 448,732, Apr. 16, 1965, now Patent No. 3,285,394. Divided and this application Mar. 21, 1969, Ser. No. 809,153
Int. Cl. B65g 17/12, 17/34
U.S. Cl. 198—136 5 Claims



A conveyor system including a monorail drive having vertically extending brackets which support a continuous product support surface. The product support surface includes separately supported grid surface which interleave with the next adjacent grid thereby to facilitate turning around a radius while maintaining a continuous product support surface.

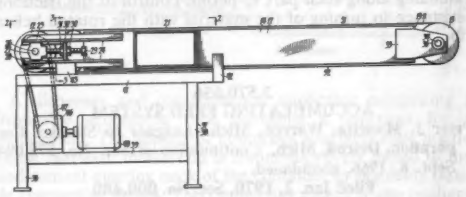
3,570,652
CONVEYOR
Howard Price, Kings Point, and Bela Szilagyi, Flushing, N.Y., assignors to International Patents & Development Corp.
Filed Oct. 10, 1968, Ser. No. 766,558
Int. Cl. B65g 15/00
U.S. Cl. 198—181 11 Claims

A conveyor arrangement for conveying containers intermittently so that the containers may be filled and emptied in sequence. A chain and sprocket drive operates in the plane of conveyance and furnishes the driving force for conveying the containers. The containers are attached to the sprocket chain, through clip members, and slide along tubular rails situated in a plane parallel to the chain and sprocket drive.



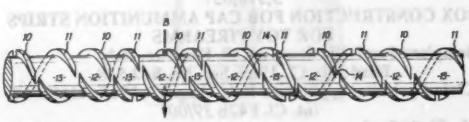
Upright post members distributed along the conveying path support a guidance rail which guides the containers along the desired path. A limit switch actuated by the moving cans interrupts periodically the drive of the sprocket and chain, and permits the containers to be filled and emptied.

3,570,653
FIBRE COLLECTION APPARATUS
Frank Sansom Cullen, Victoria, Australia, assignor to Insulwool Products Pty. Ltd., Melbourne, Victoria, Australia
Filed Nov. 20, 1968, Ser. No. 777,445
Claims priority, application Australia, Nov. 20, 1967, 30,061/67
Int. Cl. B65g 15/12
U.S. Cl. 198—190 4 Claims



A fibre collection apparatus comprises wire, cable or the like supported in an endless configuration having a plurality of straight runs disposed side-by-side to serve as fibre collectors, drive means to drive the wire cable or the like through the endless configuration so that said runs travel in one general direction, and means to apply suction through the gaps between said runs.

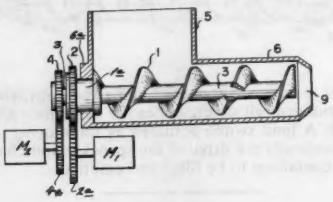
3,570,654
CONVEYING SCREW FOR EXTRUSION MACHINES AND THE LIKE
Alan Harvey Hill, Darlington, England, assignor to General Engineering Company (Radcliffe) Limited
Filed Mar. 18, 1969, Ser. No. 808,214
Claims priority, application Great Britain, Mar. 21, 1968, 13,657
Int. Cl. B65g 33/08
U.S. Cl. 198—213 6 Claims



Screw conveyors for extrusion machines, and more particularly a conveying screw of the kind adapted to be rotated in a barrel of circular cross section and comprising a central core having at least two spiral flights thereon to form a multistart thread over at least part of its length, adjacent

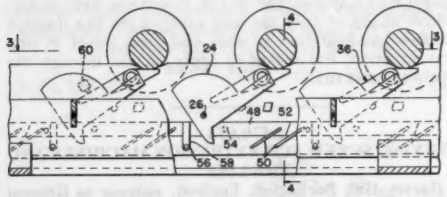
flights defining channels therebetween down which the material to be extruded is progressed.

3,570,655
MATERIAL CONVEYING APPARATUS
Torahiko Hayashi, 2-3, Nozawa-machi, Utsunomiya-shi, Japan
Filed Dec. 12, 1968, Ser. No. 783,298
Claims priority, application Japan, Dec. 13, 1967, 42-79468
Int. Cl. B65g 33/34
U.S. Cl. 198—214 10 Claims



In a material conveying apparatus including inner and outer coaxial members, such as the shank of a conveyor screw and a tubular housing therefor, having confronting surfaces of revolution defining a space therebetween through which material is to be conveyed, and a helical rib extending along one of the coaxial members, for example, the shank to propel material axially in said space in response to rotation of the rib relative to the housing, at least a part of the shank is independently rotatable with respect to the turns of the rib extending along such part to permit control of the frictional resistance to turning of the material with the rotated helical rib.

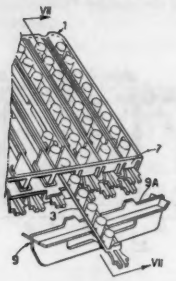
3,570,656
ACCUMULATING FEED SYSTEM
Peter J. Manetta, Warren, Mich., assignor to Simplex Corporation, Detroit, Mich. Continuation of Ser. No. 578,094, Sept. 8, 1966, abandoned.
Filed Jan. 2, 1970, Ser. No. 000,480
Int. Cl. B65g 25/08
U.S. Cl. 198—221 33 Claims



A system for advancing a series of articles through a series of stations including means for insuring advance of every article in the system to the rear of the foremost vacant station therein.

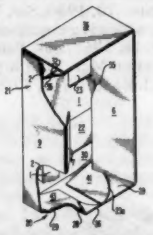
3,570,657
BOX CONSTRUCTION FOR CAP AMMUNITION STRIPS FOR TOY FIREARMS
Giampiero Ferri, Via Stoppani 38, Florence, Italy
Filed July 17, 1969, Ser. No. 842,558
Claims priority, application Italy, Aug. 13, 1968, 4168B/68
Int. Cl. F42b 39/00
U.S. Cl. 206—3 6 Claims

A storage device for strips of caps used in toy guns. A substantially open ended box is divided into a plurality of separate chambers. Each chamber stores a strip of caps which extends beyond the box. The cap strips are provided with projecting tabs positioned so as to be located just within the box when the strip is stored. The open ends of the chamber are partially closed by tongues which cooperate with the tabs of the strips to retain the strips in the box. By



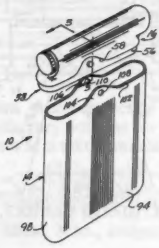
exerting a pulling force on the extending portion of a cap strip, the corresponding box tongue is broken off to permit the strip to be fully withdrawn from its chamber.

3,570,658
SHADOW BOX DISPLAY CARTON
Robert H. Swanberg, Westwood, N.J., assignor to Union Camp Corporation, New York, N.Y.
Filed Aug. 8, 1969, Ser. No. 848,526
Int. Cl. B65d 5/50
U.S. Cl. 206—45.14 6 Claims



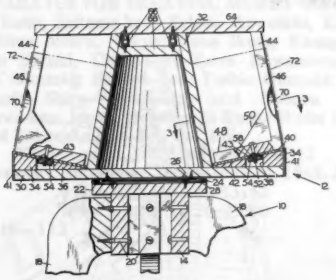
A display carton is formed by front and rear panels joined by side panels to provide a hollow body. A platform having precut openings therein is secured within the body. End flap means extend from opposite ends of the platform body along score lines which transversely intersect the platform openings. Each flap means has score lines spaced from and parallel to its first score line to define a frame portion which includes part of the corresponding platform opening, an end closure portion, and a tuck-in flap portion. The side panels have the usual dust flaps. When the carton is erected and the tuck-in flaps are inserted interiorly of the carton, the frame portion of each of the end flap means assumes an angular position relative to its adjacent platform portion and the end closure portion, and thereby serves as a frame member. The front panel is provided with hinged frame flaps which have angled free edges. When these flaps are infolded toward the platform, the angled edges cooperate with the frame portions to form a mitered frame. This frame construction gives a shadow box appearance to the assembled carton, and the assembly is securely maintained by the integral construction of the platform and the end flap means. The packaged article is inserted in the openings formed in the frame portions. Portions of the body of the article cooperate with the openings in the platform to be held thereby to maintain the article in its set position.

3,570,659
COMBINED TOBACCO PIPE CHARGER AND TOBACCO POUCH
Robert C. Richey, 5126 Taywell Drive, Springfield, Ohio
Filed Mar. 25, 1969, Ser. No. 810,129
Int. Cl. B65d *43/10, 83/06;* B67d *5/42;* G01b *11/00*
U.S. Cl. 206—41.1 3 Claims



Loading means for a smoker's pipe including a tobacco pouch and quick releasable securing means for connecting said pouch on said loading means.

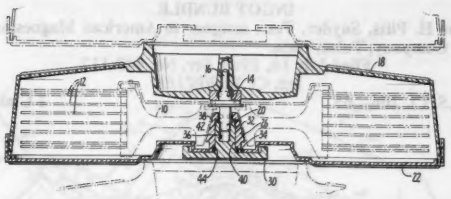
3,570,660
ROTATABLE ARTICLE HOLDER
Alvin C. Ingebo, Tigard, Oreg.
Filed May 14, 1969, Ser. No. 824,426
Int. Cl. A47b *65/00*
U.S. Cl. 211—43 4 Claims



The article holder of the invention includes a pedestal on which a rack is rotatably mounted. The rack has a base portion and an upper wall between which is mounted a plurality of right-angle dividers for forming radial spaces in the rack to receive articles. The dividers have a novel mounting arrangement in the rack whereby they are adapted to be adjusted selectively around the rack to receive articles of varying thicknesses. The dividers are mounted on an inclined portion of the base of the rack so as to be tilted inwardly to form a tapered construction facilitating easy viewing of the articles as well as easy insertion and removal of such articles, between the dividers.

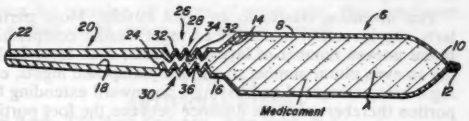
3,570,661
ATTACHMENT KNOB ASSEMBLY FOR A DISC PACK BOTTOM COVER
Cyril Kersh, Campbell, Calif., assignor to Memorex Corporation, Santa Clara, Calif.
Filed Jan. 17, 1969, Ser. No. 792,121
Int. Cl. G11b *1/02, 25/04;* B65d *21/02*
U.S. Cl. 206—62P 1 Claim

An improved cover set for magnetic memory disc packs in which the attachment mechanism for the bottom cover includes a manipulating handle below the bottom cover having a stem smaller than the handle extending through an aperture in the cover with the stem having on its upper end a threaded portion for threaded attachment to the disc memory, a sleeve mounted above the bottom cover telescopically encircling



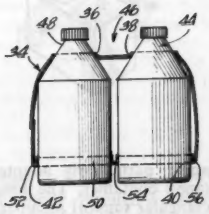
the stem for preventing withdrawal of the stem through the cover, and a releasable attachment connecting the sleeve and the stem where they telescopically fit together.

3,570,662
DISPOSABLE SQUEEZE TUBE WITH FOLDABLE NOZZLE
Jack Polyak, 503 N. Center St., Apt. 4, Joliet, Ill.
Filed Feb. 7, 1969, Ser. No. 797,540
Int. Cl. A61m *31/00*
U.S. Cl. 206—63.2 7 Claims



A dispenser and complemental applicator comprising a disposable squeezable tube providing a container for a medicament. The applicator comprises a suitably rigid nozzle whose rearward intake end is communicatively joined to the medicament ejecting neck of the container by bendably flexible connecting means. This connecting means is also resilient and foldable and permits the nozzle to be positioned alongside one lengthwise side surface of the container whereby the side-by-side container and nozzle can be compactly and conveniently stored in a sterile marginally openable plastic envelope.

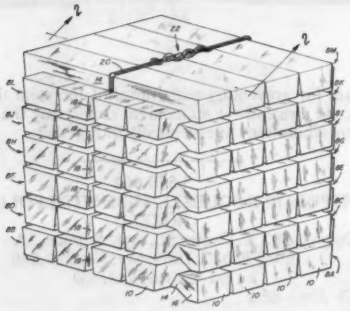
3,570,663
CONTAINER CARRIER PACKAGE
Ernest R. Cunningham, Libertyville, and William D. Stockdale, Arlington Heights, Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.
Filed Aug. 16, 1968, Ser. No. 753,121
Int. Cl. B65d *71/00*
U.S. Cl. 206—65 2 Claims



A container carrier package. The carrier comprises an open-ended tubular or endless length of flexible material oriented so as to provide an upper and lower layer interconnected by a pair of opposing sidewalls. A plurality of aligned apertures is provided in each of the layers for receiving

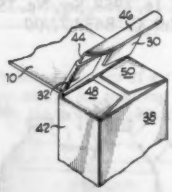
respective ends of containers therein, thereby to secure and cushion said containers within said carrier.

3,570,664
INGOT BUNDLE
Joe H. Pitts, Snyder, Tex., assignor to American Magnesium Company, Tulsa, Okla.
Filed July 18, 1969, Ser. No. 843,112
Int. Cl. B65d *71/00*
U.S. Cl. 206—65 **1 Claim**



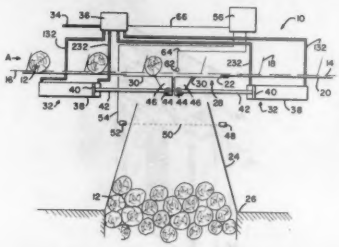
This invention relates to an ingot bundle. More particularly, the invention relates to an ingot bundle comprising a plural uneven number of layers of ingots, each layer including an even plural number of parallel juxtaposed ingots, each ingot being elongated and having a downward extending foot portion therebetween, the distance between the foot portions being such as to extend downwardly beyond the sides of the next adjacent lower layer of ingots whereby all of the layers except the top layer are held in interlocking relationship and including a wire encompassing the bundle holding all of the layers thereof together, the downward extending foot portions on the ingots making up the bottom layer providing fork lift blade receiving space.

3,570,665
CONTAINER DISPLAY HANGER
Walter Allen Houston, Park Ridge; Eric Albert Timm, Chicago; James Allan Hotchkiss, Antioch, and Vincent Joseph White, Sr., Northbrook, Ill., assignors to Encap Products Company, Park Ridge, Ill.
Filed Feb. 12, 1969, Ser. No. 798,666
Int. Cl. B65d *33/14*
U.S. Cl. 206—78 **3 Claims**



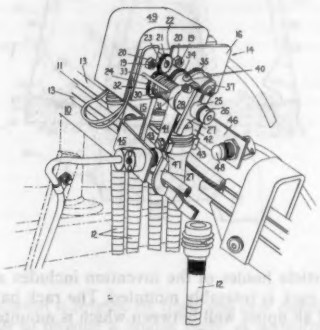
A display hanger particularly adapted for use with a rectangularly-shaped container. The hanger includes a flat substantially rectangular support member defining a circular opening proximate the upwardly disposed end thereof. The circumferential edge of the opening is connected to the side edge of the support member by means of an elongated slit. The lower end of the support member defines a rectangular flap by means of a continuous fold line. A pair of opposed locking tabs are formed integral with the flap and extend beyond the side edges of the support member.

3,570,666
MATERIAL HANDLING APPARATUS
Henri A. Delcellier, Hudson, Quebec, Canada, assignor to Canadian Ingersoll-Rand Company Limited, Montreal, Quebec, Canada
Filed Oct. 7, 1968, Ser. No. 765,372
Int. Cl. B01d *23/24*
U.S. Cl. 209—74 **10 Claims**



An apparatus including a conveyor, a receiver below the conveyor, and a gate comprising at least one gate section normally preventing discharge from the conveyor to the receiver and driven longitudinally along the conveyor to permit such discharge.

3,570,667
BOBBIN SELECTOR DEVICE
Charles P. Powell, Westboro, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Aug. 25, 1969, Ser. No. 852,563
Int. Cl. B07c *3/10*
U.S. Cl. 209—74 **7 Claims**

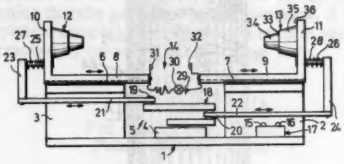


A bobbin selector device for the supporting and conveying track elements of a bobbin loading apparatus having a mechanism for detecting a bobbin not fully stripped of its yarn and for removing that bobbin from the track elements.

3,570,668
APPARATUS FOR TESTING AND CLASSIFYING BOBBINS
Hansjorg Walk, Ebersbach an der Fils, Germany, assignor to Zinser-Textilmaschinen Gesellschaft Mit Beschrankter Haftung, Ebersbach an der Fils, Germany
Filed Nov. 19, 1968, Ser. No. 777,094
Claims priority, application Germany, Nov. 21, 1967, P 16 23 344.6
Int. Cl. B07c *5/06*
U.S. Cl. 209—80 **5 Claims**

A bobbin testing or classifying apparatus wherein the bobbins are fed to a testing station at which two conical scanning members penetrate into the ends of a bobbin to determine the condition of its ends. The scanning members cause a

signal generating device to produce audible, visible or otherwise detectable signals which can be observed by the person in charge and/or utilized to effect automatic segregation of



satisfactory bobbins from defective bobbins and proper orientation of satisfactory bobbins for delivery to the bobbin changing mechanism of a textile machine.

3,570,669
FILTER AID CONDITIONERS

Bernard J. Davis, Biloxi, Miss., assignor to Reichhold Chemicals, Inc.

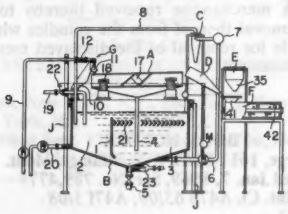
Filed Jan. 7, 1969, Ser. No. 789,592
Int. Cl. B01d *37/02*
U.S. Cl. 210—75 **9 Claims**

This application discloses a composition comprising a mixture of an oxazoline with a filter aid and to its use in filtering apparatus. This composition facilitates the removal of suspended solids from polymers and its solutions in nonpolar solvents. The preferred oxazolines are 4,4-dihydroxymethyl or 4-monohydroxymethyl-2-alkyloxazoline, wherein the alkyl group can range from C_6 to C_{22} in length, but is preferably in the range of C_{12} to C_{16}.

3,570,670
APPARATUS FOR TREATING MUDDY WATER

Masaaki Endo, Saitama-ken; Takato Kawasaki, Kanagawa-ken; Mituo Miura, Tokyo; Yoko Ikuta, Kanagawa-ken; Mosashi Suzuki, Chiba-ken; Tateo Kawamura, Tokyo; Minoru Okazaki; Hajjme Seo; Toshio Okazaki; Katsumi Tagomori; Shiro Takahashi, and Noboru Yamada, Kanagawa-ken, Japan, assignors to Kurita Water Industries Ltd. and Takenaka Komuten Co., Ltd.

Filed June 18, 1969, Ser. No. 834,312
Claims priority, application Japan, June 24, 1968, Feb. 24, 1969, 43/43382;44/13162
Int. Cl. B01d *21/26, 50/00*
U.S. Cl. 210—112 **6 Claims**



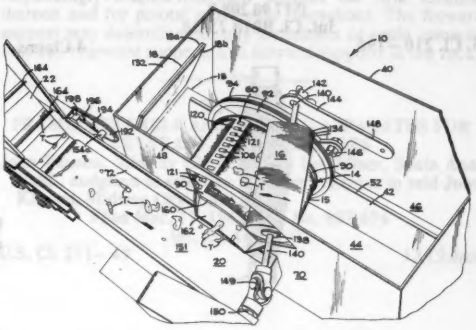
An apparatus for treating muddy water comprising a vibrating screen, a separating tank, a hydraulic cyclone, a chute for discharging solid components, a cement hopper and a mixer, all of which are incorporated to form a compact unitary system.

3,570,671
SELECTIVE COMMINUTION

Richard N. Crandall, 17792 Lewis Lane, Huntington Beach, Calif., and Carl H. Nordell, Crystal Bay, Nev.

Filed Sept. 6, 1968, Ser. No. 757,877
Int. Cl. B01d *35/28*
U.S. Cl. 210—174 **14 Claims**

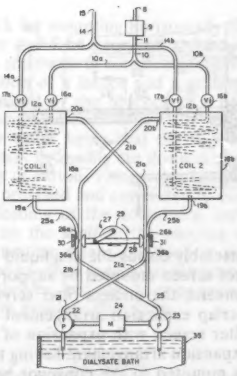
A drum screen is inserted into a raw sewage line. Rake fingers help elevate solid materials picked up by the screen from the influent and are cam retracted to leave them on the periphery of the screen. A hinged presser plate holds soft, organic material against the screen to be comminuted and carried away with the effluent and into the disposal system. A scavenger roller made up of flexible discs rotates against the screen for cleaning off pieces of paper, etc., that remain on the surface of the screen, for disposal as trash.



3,570,672
ARTIFICIAL KIDNEY

Bert Bach, 270 West End Ave., New York, N.Y.

Filed Aug. 28, 1969, Ser. No. 853,684
Int. Cl. B01d *31/00, 13/00*
U.S. Cl. 210—110 **7 Claims**

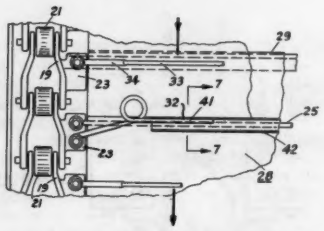


An artificial kidney is adapted to circulate a patient's blood, outside of his body, through a membrane container. Inside of a fluidtight container, the exterior wall of the membrane is washed with a circulating washing liquid. A timing device and a pressure mechanism alternately raise and lower the pressure of the washing liquid within the fluidtight container. A plurality of one-way valves, in series with the membrane container, cooperate with the pressure changes on the membrane and effect a pumping action on the blood.

3,570,673
SEPARATION COLUMN FOR LIQUID CHROMATOGRAPHY
Hubert Dutz, Mainz-Gonsenheim; Hans-Otto Mulfinger, Mainz-Mombach, and Johann Friedrich Pfrommer, Kelkheim, Germany, assignors to Jenaer Glaswerk Schott & Gen, Mainz, Germany
Filed Sept. 4, 1969, Ser. No. 855,192
Claims priority, application Germany, Sept. 7, 1968, P 17 98 208.0
Int. Cl. B01d *15/08*
U.S. Cl. 210—198 **4 Claims**

A separation column for liquid chromatography is constructed by taking a bundle of parallel inorganic chemical fibers produced from glass which serves as a liquid stationary phase and surrounding it by a sleeve of chemically resistant material which is shrunk on said bundles of fibers. After a heat treatment a phase separation takes place and then the soluble phase is eliminated by a leaching and washing procedure so that a porous glass remains.

3,570,674
LIQUID FILTER APPARATUS
Francis E. Dahlem, Louisville, Ky., assignor to American Air Filter Company, Inc., Jefferson County, Ky.
Filed Oct. 14, 1969, Ser. No. 866,229
Int. Cl. B01d *33/04*
U.S. Cl. 210—400 **4 Claims**



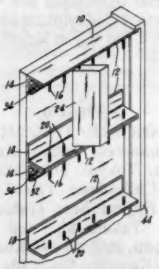
A liquid filter assembly disposable in a liquid tank comprising an endless filter screen mounted by support members on a conveyor belt means, the endless filter screen being provided with an overlap expansion arrangement to permit expansion of the filter screen with expansion of the conveyor belt means, the expansion arrangement having tensioning and restraining means mounted to the conveyor belt means and cooperating therewith to restrain the free portion of the filter screen means from falling off its support members.

3,570,675
BACK PRESSURE RESISTANT FILTER ELEMENT
David B. Pall, Roslyn Estates, and Tadas K. Jasaitis, Great Neck, N.Y., assignors to Pall Corporation, Glen Cove, N.Y.
Continuation-in-part of application Ser. No. 544,788, June 2, 1966, now abandoned. This application Jan. 5, 1967, Ser. No. 607,478
Int. Cl. B01d *27/06*
U.S. Cl. 210—457 **18 Claims**

A corrugated cylindrical filter element is disposed about a central core. A perforated plastic bonding sheet is disposed

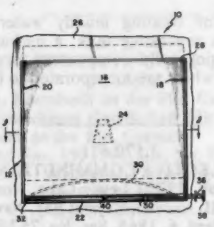
between the core and the filter. The bonding sheet is bonded in situ to the inner tips of the corrugations only.

3,570,676
THEFTPROOF MERCHANDISE DISPLAY
Louis John Crosslen, Grafton, Wis., assignor to Frank Mayer & Associates, Inc., Grafton, Wis.
Filed June 2, 1969, Ser. No. 829,202
Int. Cl. E05b *73/00*
U.S. Cl. 211—4 **8 Claims**



A display device having at least one pair of support members provided with cooperable merchandise receiving and display spindle elements and means movable relative to said support members and the spindle elements thereof and adapted to lock merchandise received thereby to prevent unauthorized removal thereof from the spindles while being readily releasable for removal of the displayed merchandise by authorized personnel.

3,570,677
BOOK HOLDER
Warren T. George, 1611 Clark Ave., Billings, Mont.
Filed Jan. 7, 1969, Ser. No. 789,477
Int. Cl. A47b *65/00*; **A47f** *5/08*
U.S. Cl. 211—42 **4 Claims**



A book holder comprising a boxlike receptacle having means for mounting the receptacle on a planar surface such

as a wall or the like. An opening is provided at one end of the receptacle for receiving a book. An ejector bar is positioned in the other end of the receptacle opposite the opening engaging the inserted book. An operating handle is attached to one end of the ejector bar and extends through a sidewall of the receptacle for bowing the ejector bar in the direction of said opening thereby partially ejecting the book. A book may be completely concealed within the receptacle yet it can be easily removed by operation of the ejector bar.

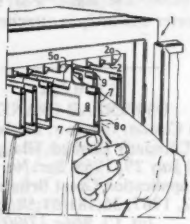
ERRATUM

For Class 211—43 see:
Patent No. 3,570,660

3,570,678
MEANS FOR SUSPENDING, FOR STORAGE PURPOSES, LARGE SHEETLIKE ARTICLES SUCH AS DRAWINGS AND THE LIKE IN CLOSE, ADJACENT RELATIONSHIP

Kurt Bonnie Karl Axel Lundberg, Malarvagen 1, 140 10 Segeltorp, Sweden

Filed Jan. 13, 1969, Ser. No. 790,748
Claims priority, application Sweden, Jan. 15, 1968, 488/68
Int. Cl. A47f 7/16
U.S. Cl. 211—46 6 Claims

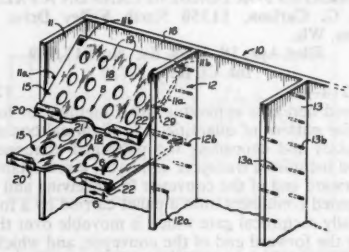


A means for suspending, for storage purposes, large sheetlike articles such as drawings, maps or the like in adjacent relationship includes a number of parallel suspension rails having angular guide portions. Each such rail cooperates with two suspension means at least one being movable between a retracted position and a raised position, the suspension means being guided by a stirrup member on one of two clamp bars which together form a holder for the article. The holder can readily be brought to its correct storage position by the use of one hand only, the thumb of the said hand manipulating the suspension means to its raised position when displacing the holder on the corresponding rail.

3,570,679
DISPLAY SYSTEMS OR DEVICES FOR SUBSTANTIALLY FLAT ARTICLES

Sydney Edson, New York, N.Y., assignor to Howard Displays, Inc., New York, N.Y.

Filed Sept. 17, 1968, Ser. No. 760,336
Int. Cl. A47f 7/16, 5/10
U.S. Cl. 211—47 10 Claims

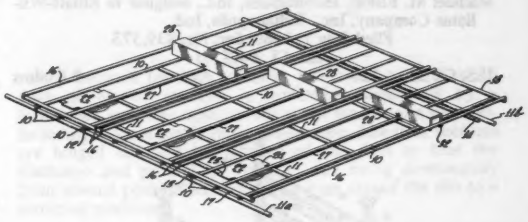


The invention contemplates a novel display device or rack with supports and tray construction, which is adapted to be engaged by pegs, studs, rods and like support means forming parts of the rack. Such tray has a top face for retaining a swatch or sample of flat material, article and the like and has further an underface or bottom on which locking means in the form of fingers for retaining and pivotally coupling the tray in the rack are accommodated. The tray is first "-pushed" into the rack for location and then "pulled" into locking or snap position, in which each finger attached to the rear or end wall of the tray comes to embrace a correspondingly shaped rearward support for firm location thereon and for pivotal movement thereabout. The forward support may determine the tray inclination or angle assumed between rearward supports and forward supports in the rack.

3,570,680
FRAMELESS SHELF AND FEEDING APPARATUS FOR BEVERAGE REFRIGERATORS

John Klassen, Midway City, and Ora Lee Miner, Santa Ana, Calif., assignors to said Ora L. Miner, assignor to said John Klassen, Midway City, Calif.

Filed Mar. 17, 1969, Ser. No. 807,674
Int. Cl. A47f 7/00
U.S. Cl. 211—49 13 Claims



A shelf or rack for mounting horizontally in a refrigerator in order to store and feed beer, soft drinks, wine, milk and other beverages and foods in containers, and which is formed by the combination of a lattice and a grating. The shelf or rack is characterized by the absence of a perimeter frame, and by the presence of rods which are connected in truss relationship, the result being that the frame is strong and lightweight and may be readily cut down in size in order to fit the requirements of various refrigerator installations. Spring-reel devices are provided and connected to cords in order to effect forward feeding of the containers, such spring reels being mounted on the shelf in the absence of any welded connections. Actuating means provided at the ends of the cords are adapted to effect automatic lubrication of the slide portions of the shelves, and also to wipe such slide portions in order to remove moisture therefrom.

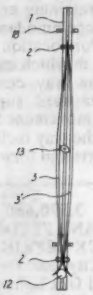
3,570,681
RACK FOR THE STORAGE OF SKIS IN PAIRS

Alfred Nikolaus Kinshofer, Albert-Schweitzer-Strasse 4, 816 Miesbach, Germany

Filed Feb. 10, 1969, Ser. No. 797,768
Claims priority, application Germany, Feb. 9, 1968, P 16 78 268.6
Int. Cl. A47f 7/00
U.S. Cl. 211—60 10 Claims

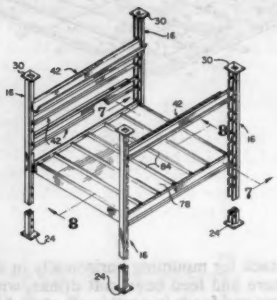
Apparatus for the storage of skis in pairs, comprising a support rail and clamping assemblies mounted on the support rail to enable distortion-free clamping of the skis at their points of contact near their tips and ends when placed together in a sole-to-sole relationship. Each of the clamping assemblies comprises a movable slide having clamping arms connected thereto in a substantially perpendicular direction

from the support rail with the clamping arms supporting rocking arms having wheels at each end. The wheels are



pressed onto the surface of the skis when the skis are clamped in the desired position.

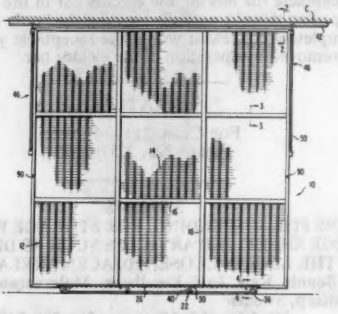
3,570,682
RACK AND SHELVING SYSTEM
Michael M. Elliott, Indianapolis, Ind., assignor to Elliott-Williams Company, Inc., Indianapolis, Ind.
Filed July 7, 1969, Ser. No. 839,373
Int. Cl. A47f *3/14*
U.S. Cl. 211—126 **9 Claims**



A rack system for receiving and supporting items such as trays, pans, shelves, and the like comprising at least two pairs of vertically extending standards and a plurality of guide members extending between and connected to each pair of standards. Each end of each guide member is formed to provide upper and lower hook portions which engage, respectively, vertically spaced apart notches in a flange of the standard to which the end is connected. Each standard is preferably provided with a base plate so that it can be rigidly fastened to a floor. The upper end of each standard is preferably connected to a ceiling by means of a connector plate. Each standard is preferably a channel member, both flanges of which are provided with notches arranged to engage the said hook portions of a guide member.

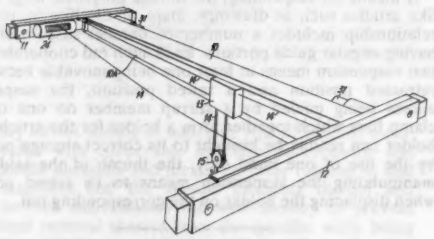
3,570,683
MOVABLE SCREEN ASSEMBLY
Robert C. Dickgiesser, Woodland Drive, Woodbridge, Conn., and Edward L. Schulz, 274 Ridgefield Road, Wilton, Conn.
Filed Jan. 28, 1969, Ser. No. 794,630
Int. Cl. A47f *5/00*
U.S. Cl. 211—162 **9 Claims**

A movable support panel assembly for hanging and supporting articles is of modular construction provided by a number of modules within an outer rectangular frame. Each module has a panel for supporting the articles, and the outer frame has roller supports at the bottom for moving the assembly on the floor and guides at the side edges for extending into stationary overhead tracks. The guides may be



retracted so that the assembly may be moved to positions which are not under the track. For such movements an outrigger transporter assembly is attached to each end of the screen.

3,570,684
OVERHEAD CRANES
William Graham Cowan, Glasgow, England, assignor to J. H. Carruthers & Company Limited, Glasgow, England
Filed July 29, 1968, Ser. No. 748,401
Claims priority, application Great Britain, Aug. 9, 1967, Dec. 22, 1967, 36,481/67;58,851/67
Int. Cl. B66c *17/00*
U.S. Cl. 212—20 **1 Claim**

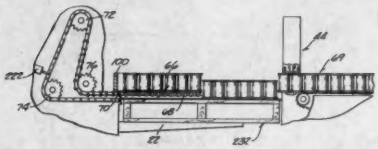


This invention relates to an overhead crane of the kind comprising a transverse overhead beam, a pair of carriages supporting the ends of the beam so as to form with the beam a longitudinally movable structure.

3,570,685
APPARATUS FOR LOADING CANS ON A PALLET
Kenneth G. Carlson, 11350 North Valley Drive 18 W., Mequon, Wis.
Filed Apr. 18, 1969, Ser. No. 817,529
Int. Cl. B65g *57/10*
U.S. Cl. 214—6 **12 Claims**

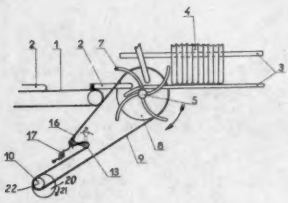
Disclosed herein is apparatus and a method for forming a rectangular pattern of quantities of cylindrical containers of various sizes and depositing the patterned containers on a pallet and includes a transport conveyor, a retractable apron at the forward end of the conveyor for receiving and depositing patterned containers onto a pallet carried by a fork lift, a horizontally reciprocal gate which is movable over the apron and over the forward end of the conveyor, and which carries a pattern forming element. The apparatus is also provided with a vertically reciprocal clamping bar and includes adjustable side rails along the edges of the conveyor which cooperate with the pattern forming element to form a

predetermined pattern of containers on the conveyor. The horizontal gate is also used to sweep layers of cans from filled



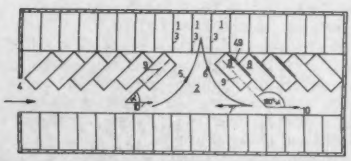
pallets onto the conveyor when the apparatus is used for depalletizing.

3,570,686
APPARATUS FOR ARRANGING PUBLICATIONS IN GROUPS
Robert Moll, 9 bis Vidollet, Geneva, Switzerland
Filed Mar. 17, 1969, Ser. No. 807,504
Claims priority, application Switzerland, Mar. 21, 1968, 4414/68
Int. Cl. B65g *57/08*
U.S. Cl. 214—7 **2 Claims**



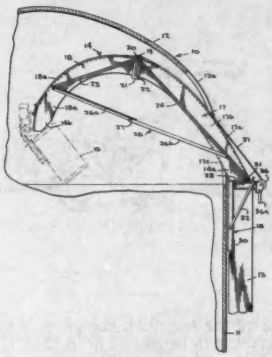
Publications are spaced on a continuous horizontal belt conveyor and are lifted from the belt conveyor and turned at right angles into a chute where the publications are grouped. A rotary element having radially and angularly spaced fingers moves the publications from the horizontal conveyor to the chute. The speed of rotation of the rotary element is regularly increased and decreased to allow more time for the publications to enter the spaces between the fingers without increasing the total time of the operational cycle.

3,570,687
VEHICLE GARAGE WITH SHIFTABLE AND PIVOTAL PLATFORMS
Sergej D. Toedtli, 42 Attenhoferstrasse, 8032 Zurich, Switzerland
Filed Apr. 22, 1968, Ser. No. 722,877
Claims priority, application Switzerland, May 17, 1967, Aug. 18, 1967, 6958/67;11649/67
Int. Cl. E04h *6/06*
U.S. Cl. 214—16.1 **11 Claims**



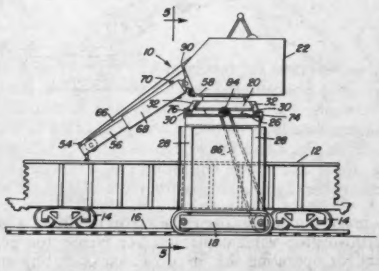
The individual parking platforms of a row thereof, located between a vehicle thoroughfare and a row of parking spaces, can be shifted and pivoted automatically to free ingress to, and egress from, any parking space, or to enable the driver to drive easily onto, or off of, a platform.

3,570,688
GOOSENECK STRUCTURE FOR SILO DISTRIBUTORS
William L. Ryder, and Benjamin H. Roach, Chambersburg, Pa., assignors to said Benjamin A. Roach assignor to Ryder Supply Company, Chambersburg, Pa.
Filed May 23, 1969, Ser. No. 827,399
Int. Cl. B65g *65/32, 51/18*
U.S. Cl. 214—17 **16 Claims**



A gooseneck fill duct assembly wherein a gooseneck fill duct of hinged sections is removably supported by a framework structure adjacent the upper margin of a silo wall, including a decouplable hinge connection. The duct sections are hinged adjacent the bottom of the duct so that the discharge end portion of the duct can swing downwardly from normal position adjacent the center axis of the silo to a retracted position.

3,570,689
STRADDLE-LEGGED GONDOLA CAR UNLOADER
Jay S. Eaton, P.O. Box 15195, West Palm Beach, Fla.
Filed Mar. 6, 1969, Ser. No. 804,803
Int. Cl. B65g *67/24*
U.S. Cl. 214—44 **16 Claims**

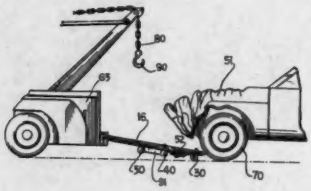


This invention is a straddle-legged gondola car unloader that is a temporarily converted shovel or ladder-type ditcher, or a railway wheeled ditcher, wherein the upper portion is detached from its crawler or wheelbase and then the wheels or crawlers are spread apart to a distance greater than the width of a gondola car, and then stanchions and a platform are provided on the base at a height greater than that of the gondola car, also a ramp is temporarily connected to the elevated platform enabling the upper portion to climb up on the platform and be again operatively connected to the crawlers or rail wheels. When rail wheels are on the base, a track is provided on each side of the gondola car location. This structure enables a gondola car unloader to be temporarily set up at any desired location for as short or long as desired, then it may be easily removed, and reconverted to its original purpose.

3,570,690
LIFTING AND TOWING APPARATUS

Edward F. Wegener, and Thure H. Wegener, River Road, Cranbury South, N.J.

Continuation-in-part of application Ser. No. 609,939, Jan. 17, 1967, now abandoned. This application Mar. 12, 1969, Ser. No. 826,736
Int. Cl. B60p *3/12*
U.S. Cl. 214—86 **16 Claims**

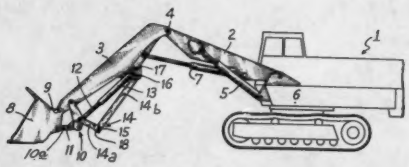


The tow bar of the invention comprises a rigid combination of bars adapted to be placed in front of a wreck whose wheels are pulled onto the bars by a cable attached to the wreck and guided along the bars. The tow bar and the wheels of the wreck are then raised, and the wreck can then be towed on its other two wheels which remain on the ground.

3,570,691
PROTECTION DEVICE FOR A CONTROL RAM

Gabriel L. Guinot, Le Plessis Belleville, France, assignor to Societe Anonyme Poclain, Belleville, France

Filed Jan. 21, 1969, Ser. No. 792,253
Claims priority, application France, Jan. 26, 1968, 137,578
Int. Cl. E02f *3/74*
U.S. Cl. 214—138 **4 Claims**



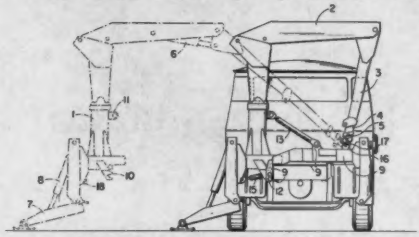
The invention consist in providing on the jib of a mechanical earthworking vehicle pivoted bar means for protecting the ram for operating the jib, or a ram operating an implement such as a bucket or scoop mounted on the jib, the pivoted bar means being so arranged that said ram is located between said bar means and the jib.

3,570,692
METHOD FOR CONNECTING AND DISCONNECTING A CRANE WITH A TRUCK

Jan Oddvard Andersen, Buoy, Stavanger; Inge Bru, Stavanger, and Olav Sirevaag, Eikenbert, Stavanger, Norway, assignors to A/S Seseam, Jattavagen, Stavanger, Norway

Filed Apr. 4, 1969, Ser. No. 827,439
Int. Cl. B66c *23/06*
U.S. Cl. 214—152 **3 Claims**

A method for coupling and uncoupling a hydraulically operated lifting crane to and from a truck by connecting the crane boom to a fixed point and moving the crane horizontally and/or vertically in a direction toward or away from the truck, thereby causing cooperating coupling means carried

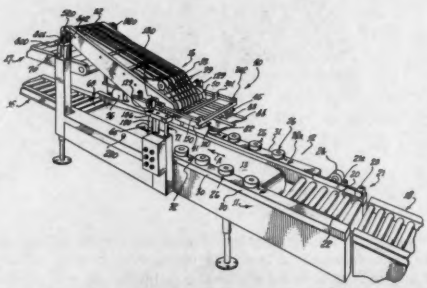


on the crane and the truck, respectively, to engage or disengage.

3,570,693
CASE UNLOADING MACHINE

John J. Peyton, Santa Barbara, Calif., assignor to Industrial Automation Corporation, Santa Barbara, Calif.

Filed Apr. 18, 1969, Ser. No. 817,465
Int. Cl. B65b *21/18*
U.S. Cl. 214—309 **14 Claims**

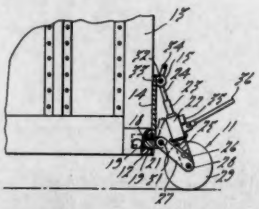


An automatic bottle from case unloading machine employing a plow-like member which directs the bottles within a case passing under the plow to be directed into predetermined paths coincident with the pluralities of belt pairs which serve to grip and remove the bottles from the cases. The cases are driven on a conveyor belt beneath a head which includes the plow and belt pairs. A synchronized head lifting construction permits rapid clearing in the event of a jam and also enables quick belt change when a belt breaks.

3,570,694
SEPARABLE WHEEL UNITS FOR VEHICLIZING CONTAINER

Keith W. Tantlinger, Grosse Pointe Shores, Mich., assignor to Fruehauf Corporation, Detroit, Mich.

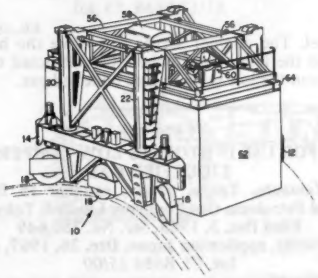
Filed Nov. 26, 1968, Ser. No. 779,085
Int. Cl. B60p *1/64*
U.S. Cl. 214—390 **5 Claims**



The wheel units are releasably attached to the bottom corner sockets of a shipping container which raises the con-

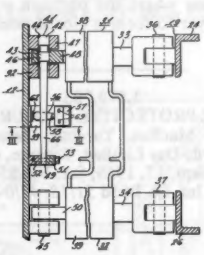
tainer on the wheels of the units when a hydraulic ram on the unit is extended.

3,570,695
VEHICLE FOR CARRYING AND STACKING CONTAINERS
William H. Schwartz, 260 Summit Drive, Corte Madera, Calif.; John B. Shaw, 1812 E. Marlette, Phoenix, Ariz., and Graham Slater, 500 Pine St, Sausalito, Calif.
Filed Jan. 21, 1969, Ser. No. 792,523
Int. Cl. B66c 5/02
U.S. Cl. 214—394 7 Claims



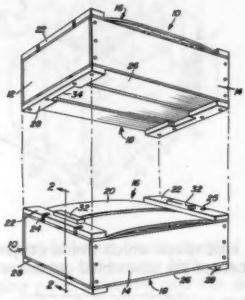
A vehicle having a main frame of inverted substantially U-shaped configuration adapted to straddle a container, legs which are extendable and retractable, and a lifting frame which moves generally along with the extension and retraction of the legs. The container may be locked to the lifting frame when the legs are retracted, and may be lifted to a height at least as great as the height of another container on the ground when the legs are extended, so that one container may be stacked on another.

3,570,696
OVERLOAD DEVICE FOR LIFT TRUCK
Samuel T. Comfort, Homewood, and Thomas J. Finlayson, Forest Park, Ill., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Aug. 11, 1969, Ser. No. 848,825
Int. Cl. B66f 9/20
U.S. Cl. 214—673 10 Claims



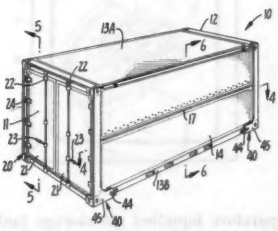
A tilt ram connecting pin is elongated in one axial direction so that a small deflection of the pin at its connection with the tilt ram will produce a much larger deflection of the pin at a point on the elongated part remote from such connection. A motion multiplying lever contacts the pin at such point and operates a switch which operates a warning signal device such as a warning light and/or prevents operation of the lift truck while unsafe or prevents movement of the load or mast in a manner that would make operation of the truck less safe.

3,570,697
INTERLOCKING LUG CONSTRUCTION
Everett E. Langston, 2932 Elmwood Ave., Bakersfield, Calif.
Filed May 15, 1969, Ser. No. 824,924
Int. Cl. B65d 21/00
U.S. Cl. 217—42 2 Claims



A packing crate or lug of the type particularly adapted for the boxing of grapes and similar foodstuffs. The lug differs from a substantially conventional lug in that it specifically includes elongated upwardly projecting locking members affixed to the top cleats and receivable within corresponding recesses defined in the bottom cleats of superimposed lugs. The members and recesses are so orientated as to preclude a shifting of the lugs both longitudinally and transversely of each other.

3,570,698
PORTABLE AND COLLAPSIBLE SHIPPING CONTAINER
Robert S. Dougherty, P.O. Box 68, Ross, Calif.
Filed Dec. 9, 1968, Ser. No. 782,060
Int. Cl. B65d 7/24; B65j 1/02
U.S. Cl. 220—1.5 3 Claims

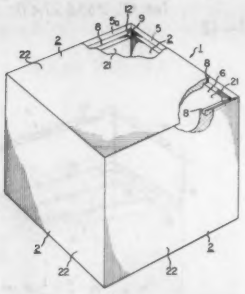


A collapsible rectangular shipping container having two opposed horizontally-hinged sidewalls which can be collapsed or folded inwardly and downwardly to allow the top and bottom walls to sandwich together and having folding ends which fold over to cover the collapsed structure.

3,570,699
KNOCKDOWN CONTAINER
Heikichi Kobayashi, Shimizu-shi, Japan, assignor to Sanei Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 18, 1969, Ser. No. 850,904
Claims priority, application Japan, Aug. 28, 1968, 43/73563
Int. Cl. B65d 11/18, 11/16
U.S. Cl. 220—4 6 Claims

A knockdown container of cubic shape is assembled from six interchangeable square panels each having two opposite side edges of a first kind and two opposite edges of a second kind each of which can be fitted against an edge of the first

kind to form a rebated mitred joint. Corner projections are provided at the four corners of each panel and function to fill



completely a void space which would otherwise be formed at the eight corners of the assembled container.

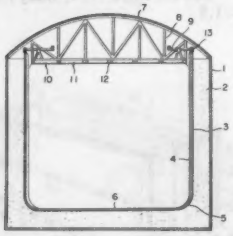
ERRATUM

For Class 220—5 see:
Patent No. 3,571,533

3,570,700
LOW TEMPERATURE LIQUEFIED GAS STORAGE TANK

Katsuro Yamamoto, Tokyo; Kuniyoshi Obata, Kawasaki, and Shinji Nakagawa, Kasukabe, Japan, assignors to Bridgestone Liquefied Petroleum Gas Company Limited, Tokyo, Japan

Filed Nov. 20, 1968, Ser. No. 777,338
Int. Cl. B65d *7/22*
U.S. Cl. 220—10 **5 Claims**



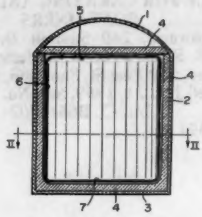
A low-temperature liquefied gas storage tank comprising an outer tank made of rigid metals and an inner tank having a thin film construction. The inner tank is provided at its upstanding peripheral inside surface with vertically extending corrugations and includes means for suspending its upper peripheral edge so as to permit contraction and expansion of the inner tank when it is subjected to a liquid load or exposed to a low temperature. The inner tank prevents undesirable cracking and damage thereof and can store the low-temperature liquefied gas in a safe manner.

3,570,701
TANK FOR USE IN STORING LOW TEMPERATURE LIQUEFIED GAS

Katsuro Yamamoto, Tokyo, Japan, assignor to Bridgestone Liquefied Petroleum Gas Company Limited, Tokyo, Japan

Filed Dec. 3, 1968, Ser. No. 780,717
Int. Cl. B65d *7/22*
U.S. Cl. 220—10 **3 Claims**

A tank for use in storing low temperature liquefied gas having a rigid outer vessel lined with a heat insulating layer and an inner vessel of a thin film construction with gently undulated camber. The peripheral dimensions of the material of the inner vessel are made relatively larger than those of the inner peripheral dimensions of the insulating layer of the

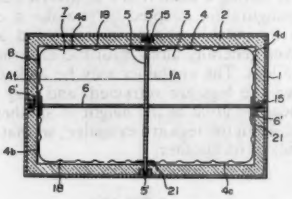


outer vessel. The camber serves to relieve the hoop stress acting upon the inner vessel when it is subjected to the load resulting from the low temperature liquefied gas.

3,570,702
TANKS FOR USE IN STORING LOW TEMPERATURE LIQUEFIED GAS

Katsuro Yamaoto, Tokyo, Japan, assignor to Bridgestone Liquefied Petroleum Gas Company Limited, Tokyo, Japan

Filed Dec. 3, 1968, Ser. No. 780,649
Claims priority, application Japan, Dec. 26, 1967, 42/82933
Int. Cl. B65d *25/00*
U.S. Cl. 220—16 **1 Claim**

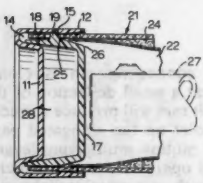


Tank for use in storing low temperature liquefied gas comprising a rigid outer vessel, a thin film inner vessel with rigid partition walls, and a heat insulating layer inserted between these two vessels. Each of the partition walls extends through the inner vessel and is slidably supported by the outer vessel to permit expansion and contraction of the partition walls. The thin film inner vessel walls are secured to the partition walls at points near where the partition walls pass into the heat insulating layer to form a closed vessel having a large capacity.

3,570,703
GUN CASE PROTECTIVE CLOSURE DEVICE

James Alexander MacRae, Toronto, Ontario, Canada, assignor to Edwards-Day Limited, Toronto, Ontario, Canada

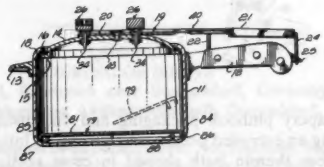
Filed Sept. 17, 1969, Ser. No. 858,616
Int. Cl. B65d *51/18, 43/0*
U.S. Cl. 220—29 **8 Claims**



A protective closure device for fitting to the end of a gun case, to protect the muzzle and forward sight of the gun from

dirt and impacts, is disclosed. The device comprises a resilient plastic cap having an internal ledge, within which is received the end of the sight guard sleeve of the gun case and a resilient plug. The plug has projections which pass through holes in the sleeve and are retained behind the ledge in the cap by interference fit and engagement with the ledge. The plug presents a closed end face to the gun muzzle, and with the cap, defines an air enclosure so that impacts of the muzzle of the plug end face are absorbed without shock by the resilient cushioning effect of the interfitted plug and cap.

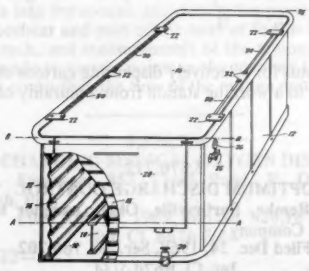
3,570,704
PRESSURE COOKERS
Benjamin Juan Roson, Au. R. Saenz Pena 730, Buenos Aires, Argentina
Filed July 7, 1966, Ser. No. 563,529
Int. Cl. B65d *51/16*
U.S. Cl. 220—44 **5 Claims**



Pressure cooker with a simple and easily operable valve system which includes a stopper with an external counterweight that can be optionally lifted with a manually rotatable cam system. A two-part food carrying grid may be inserted which has means for supporting the same a certain distance from the inner bottom of the cooker.

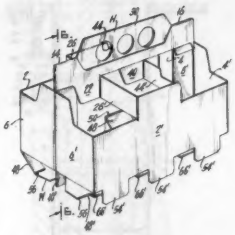
A deformable, annular gasket is used between the lid and the inwardly turned rim of the cooker vessel, the gasket having a projection, which is in intimate sealing contact with portions of the lid and the rim, except for an outer side surface which has freedom of expansion when the gasket is deformed in its sealing position. The projection may be given different transitional engaging areas.

3,570,705
CARGO CONTAINERS
Mohamed R. Yazdani (Known as Ruholah Yazdani) Kassravi, Mount Carmel Rubber Factory Ltd. P. O. Box 1701, Dar Es Salaam, Tanzania
Filed May 14, 1968, Ser. No. 728,987
Claims priority, application Great Britain, May 17, 1967, 23,000/67
Int. Cl. B65d *25/18*; **B65p** *3/22*
U.S. Cl. 220—63 **2 Claims**



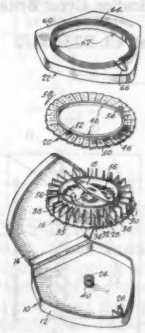
A cargo container comprises a base, a platform capable of bearing a load, guide means permitting of movement of the platform relative to the base between a lower, collapsed position and an upper, erected position, and a tank having flexible, liquid, impermeable sidewalls between the underside of the platform and the base.

3,570,706
ONE WAY BASKET
Glenn Ray Harrelson, Monroe, La., assignor to Olinkraft, Inc.
Filed May 26, 1969, Ser. No. 827,773
Int. Cl. B65d *75/00*, *5/48*
U.S. Cl. 220—114 **3 Claims**



A throwaway strap-style bottle carrier formed from a unitary blank of minimal area, the carrier having a bottom wall with marginal sloping panel portions, and the sloping panel portions being provided with bottle-receiving cutouts having overlying tabs to protect that portion of the bottles which is received in the cutouts.

3,570,707
TABLET DISPENSER
Henry Finkel, Westmount, Quebec, Canada, assignor to Desbergers Limited, Montreal, Quebec, Canada
Filed Oct. 8, 1969, Ser. No. 864,681
Int. Cl. B65h *3/28*
U.S. Cl. 221—5 **11 Claims**

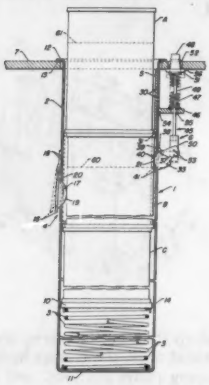


This tablet dispenser includes four elements: a case, a tablet-receiving disc with a time indicator thereon, a calendar element disposed over the disc, and a clamp element for holding the disc and the calendar element in the case. The disc and the calendar element are each provided with a ratcheted shoulder, cooperating with pawls on the clamp element, which will allow the rotation of these two elements only in a direction opposite to one another.

3,570,708
CAN DISPENSER WITH POSITIONING AND RELEASE MEANS
William E. Manz, Miami, and Clifford A. Maycott, Jacksonville, Fla., assignors to Universal Oil Products Company, Des Plaines, Ill.
Filed June 9, 1969, Ser. No. 831,428
Int. Cl. B65h *1/08*
U.S. Cl. 221—227 **9 Claims**

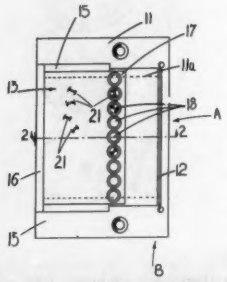
A tubular form of can dispenser having a dispensing spring that urges the cans through the open upper end of the tube, but the cans are initially prevented from passing

therethrough by the coaction of a stopping means, which is a lateral surface located near the open end of the tube, and an offsetting spring. To dispense cans, a displacement means,



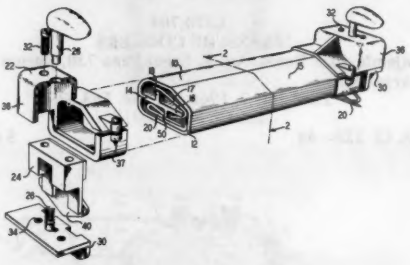
located under the lateral surface, and basically consisting of a movable piece, is activated to move a can under and away from the lateral surface, thereby allowing it to pass through the open end of the tube.

3,570,709
DISPENSING APPARATUS
Horace Robins, Birmingham, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed June 24, 1969, Ser. No. 835,978
Claims priority, application Great Britain, July 15, 1968, 33621/68
Int. Cl. B23q *7/12*
U.S. Cl. 221—156 **3 Claims**



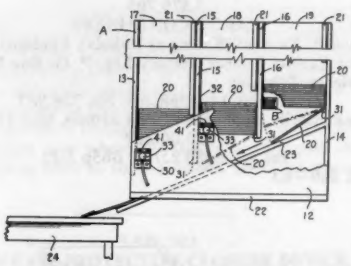
Apparatus for dispensing a predetermined number of elongated generally planar components simultaneously in a desired orientation from a hopper containing a plurality of the components orientated randomly, the apparatus including a flat base, and a hopper for receiving a plurality of randomly orientated components. The hopper is positioned above the base and includes a number of holes equal to the number of components to be dispensed in one operation. Components are dispensed through the holes onto the base, and a wiper movable longitudinally on the base towards and away from a receiving channel parallel with the wiper. Components delivered through the holes are supported by the base so as to lie in a common plane, and are engaged by the wiper during movement of the wiper towards the receiving channel so that the movement of the wiper causes the components to become aligned with one another along the edge of the wiper. The wiper delivers the components over the edge of the preceding channel so as to stand edge on, parallel with one another along the channel.

3,570,710
DRAPERY PINHOOK PACKAGING AND DISPENSING DEVICE
Hugo Bauer, Union County, N.J. (124 Summit Court, Westfield, NJ 07090)
Filed Dec. 8, 1969, Ser. No. 883,091
Int. Cl. B65h *3/00*
U.S. Cl. 221—255 **7 Claims**



Drapery pinhook packaging and dispensing device comprising an extruded plastic tube having an integral supporting member therein both shaped in cross section to smoothly receive a row of pinhooks therein and facilitate dispensing and/or removal thereof and adapted for right-hand and left-hand operation.

3,570,711
CARTON DISPENSING APPARATUS
Willaim O. Young, Jr., and Walter J. Quattlebaum, Spartanburg, S.C., assignors to Said Quattlebaum assignor to Young Engineering Inc., Spartanburg, S.C.
Filed Feb. 17, 1969, Ser. No. 799,587
Int. Cl. B65g *59/00;* **G07f** *11/16*
U.S. Cl. 221—295 **6 Claims**

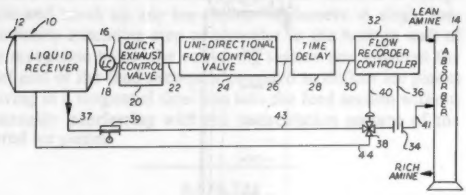


An apparatus for selectively dispensing cartons or boxes of various sizes to a working station from a plurality of stacks of boxes.

3,570,712
OPTIMUM DISCHARGE CONTROL
Marvin A. Remke, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed Dec. 24, 1968, Ser. No. 786,702
Int. Cl. B67d *5/34*
U.S. Cl. 222—1 **12 Claims**

A liquid receiver is adapted to rapidly receive, intermittently, large volumes of liquid. Liquid in the receiver is forwarded to a zone of use or processing zone. After the receiver is full, controls regulate the flow therefrom whereby it gradually increases to a maximum rate and subsequently gradually decreases after a predetermined portion of the

receiver contents has been emptied. The flow control devices provide for gradual changes in rates of flow into a zone of

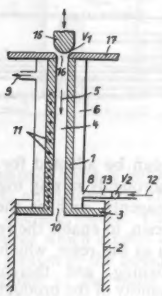


use and for extended periods of slow at a uniform optimum rate despite the nonuniform manner of liquid accumulation in the receiver.

3,570,713
POURING OF MELTS

Kristof Tromel, Buederich near Duesseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Duesseldorf, Germany

Continuation-in-part of application Ser. No. 532,638, Mar. 8, 1966, now abandoned. This application Apr. 14, 1969, Ser. No. 815,954
Int. Cl. B67d *5/62*
U.S. Cl. 222—1 **10 Claims**



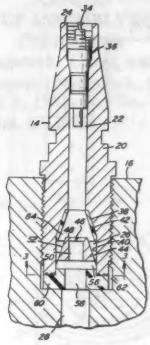
In pouring superheated metal melts from a pouring vessel into an ingot mould or a chill mould, the molten metal is passed through a teeming tube of relatively small cross-sectional area into the mould, and during this passage the whole of the superheat and part of the heat of fusion is withdrawn from the melt, and measurements of the temperature of the melt are made at certain points in the teeming tube and employed for controlling the flow of the molten metal.

3,570,714
FAST CHARGING MEDICAL OXYGEN DISPENSER

Harry D. Ferguson, 855 Cross Road, P. O. Box 142, Lederach, Pa.

Filed Apr. 29, 1969, Ser. No. 820,167
Int. Cl. B67b *7/24*
U.S. Cl. 222—3 **5 Claims**

A fast charging medical oxygen dispenser including a specially designed valve which has a fixed valve seat and a freely movable valve body. In dispensing position the valve body nests closely within the valve seat with the valve body having an extremely small dispensing opening which allows the gas to pass from a storage space and then through the valve for dispensing purposes. In fast charging condition the valve body is urged somewhat away from the valve seat with the valve body having an enlarged slot which is closed off during the dispensing action, but which is opened when the valve body is urged away from the valve seat so that gas can

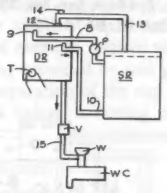


quickly pass through the enlarged slot and into the storage area.

3,570,715
DISPENSING SYSTEM

Anders Evers, 6300 S.W. Richey Lane, Portland, Oreg.

Filed Nov. 7, 1968, Ser. No. 774,001
Int. Cl. B67d *5/08*
U.S. Cl. 222—54 **2 Claims**



A predetermined quantity of hot liquid is supplied from a delivery reservoir to a whipper chamber to which a measured quantity of powder such as powdered chocolate is supplied by a motor driven auger. Whipping action is effected in the shipper chamber by means of a motor driven impeller and the mixed product is dispensed through a dispensing outlet into a receptacle therebelow. The receptacle is effective when placed below the dispensing outlet to initiate the operation by engagement with a pivotally mounted control bracket which when moved initiates a control action and the resultant aforementioned operation. Hot liquid in the delivery reservoir is supplied thereto by a motor driven pump controlled by the control system from a supply reservoir in which hot liquid is maintained at all times. Flow of hot liquid from the delivery reservoir into the whipper chamber is controlled by a solenoid control valve, the action of which is predetermined by a motor driven timing means.

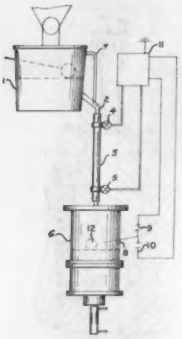
3,570,716
FLUIDIZER AND DISPENSER

Boris J. Kirsanoff, Glenwood; Joseph J. Merle, and Robert A. Winkless, Oak Lawn, Ill., assignors to Continental Can Company, Inc., New York, NY

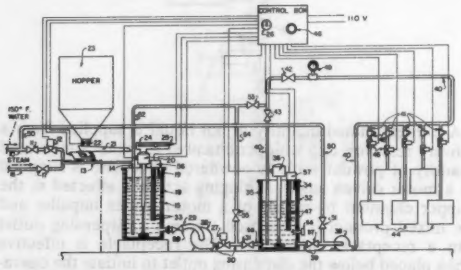
Filed Nov. 4, 1968, Ser. No. 772,988
Int. Cl. B65g *3/12*
U.S. Cl. 222—67 **5 Claims**

The fluidizer and dispenser has a storage container mounted above the fluidizing chamber and a valve system to meter small increments of pulverant material from the storage container to the fluidizing chamber. The fluidizing element comprises a cylinder having an air nozzle and fluidiz-

ing plate and a diffuser plate extending across its lower area to provide a fluidized bed of pulverant material in the region above the plate. Part of the fluidized bed of pulverant material is aspirated by means of the jet into a conduit through which it is conducted in air solution. Fluidized pulverant material is conducted to a nozzle and there sprayed onto a can or other surface.



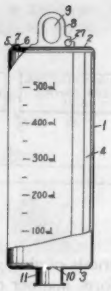
3,570,717
SYSTEM FOR FLUENT MATERIAL DISPENSING WITH ELECTRICAL CONTROLS
Kenneth R. Olson, Chagrin Falls, Ohio, assignor to Stauffer Chemical Company, New York, N.Y.
Filed Jan. 8, 1969, Ser. No. 789,781
Int. Cl. B67d *5/06*
U.S. Cl. 222—76 **8 Claims**



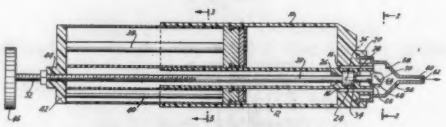
A system for automatically preparing an aqueous dispersion of difficulty-soluble, solid detergent material and delivering the dispersion to the wash wheels of automatic washing machines, comprising means for separately delivering controlled amounts of detergent and water to a mixing tank, means for transferring the detergent-water mix to a storage vessel having stirring and circulating means, and means for dispensing quantities of the mix as needed to the various washwheels.

3,570,718
CONTAINERS FOR DISPENSING PHYSIOLOGICAL SOLUTIONS
Masahito Otsuka, Tokyo-to, Japan, assignor to Otsuka Pharmaceutical Company Limited, Tokyo-to, Japan
Filed Dec. 6, 1968, Ser. No. 781,942
Claims priority, application Japan, Apr. 11, 1968, 43/24385
Int. Cl. B65d *23/10*
U.S. Cl. 222—88 **2 Claims**

A container for dispensing a physiological solution comprising a flexible ampoule member, a hanger provided on the top end wall of said ampoule member, a thin wall portion formed in said top end wall for permitting a syringe needle to pass through, said thin wall portion having a thickness of 0.2 to 0.4 mm., and a tubular projection provided in the bottom end portion of said ampoule member.

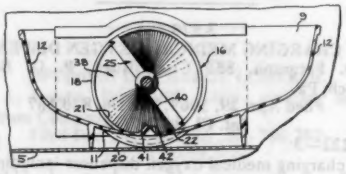


3,570,719
REAGENT MIXING AND DISPENSING APPARATUS
Louis Schiff, 135 St. Pauls Road North, Hempstead, N.Y.
Filed July 2, 1968, Ser. No. 752,727
Int. Cl. B67d *5/52*
U.S. Cl. 222—137 **7 Claims**



Apparatus, which can be adapted for manual operation, for accurately and thoroughly mixing together a plurality of individually stable reagents, such as the constituents of a quick setting epoxy resin, to enable the reagents to react and form a product, such as the resin, which must be dispensed rapidly before hardening, and thereafter to accurately dispense a desired quantity of the product.

3,570,720
COMBINATION STORAGE RECEPTACLE AND DISPENSER
Robert W. Curry, III, Louisville, Ky., assignor to General Electric Company
Filed Aug. 6, 1969, Ser. No. 847,848
Int. Cl. G01f *11/20*
U.S. Cl. 222—240 **6 Claims**



An ice piece dispenser comprising a relatively wide and shallow receptacle having a generally concave bottom wall and a dispensing outlet in the front thereof contains an auger-type dispensing means horizontally supported in the receptacle in spaced relationship with the sidewalls of the receptacle. The dispensing means includes a feed section for

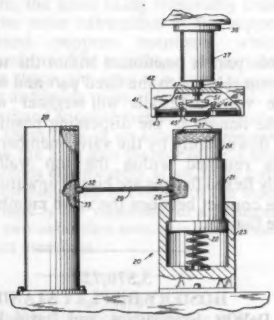
dispensing ice pieces through the outlet and a conveying section spaced from the feed section for conveying ice pieces to the feed section at a rate in excess of that at which ice pieces are dispensed by the feed section so that the excess ice pieces move tangentially into adjacent portions of the receptacle and are recirculated to thereby agitate the contents of receptacle and break up any ice clumps or clusters. A single longitudinally extending step or shoulder in the bottom wall of the receptacle below the conveying section and adjacent the inlet end of the feed section is provided to deflect ice pieces moving in a tangential direction into the feed section without materially interferring with the recirculation pattern of the stored ice pieces.

3,570,721

METHOD FOR EJECTING CONTROLLABLE AMOUNTS OF LIQUID FROM A CONTAINER

Robert H. Cushman, Princeton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed June 11, 1969, Ser. No. 832,384
Int. Cl. B65d *5/72*
U.S. Cl. 222—319 **4 Claims**



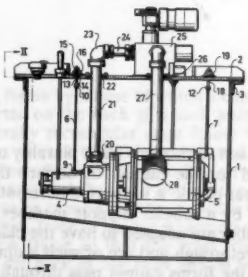
An instantaneous impact force is imparted to the outside of an otherwise closed, nondeformable chamber filled with a liquid and having an opening therein. The force generates a shock within the chamber which creates a two-cycle internal pressure that imparts motion to the liquid to cause a volume of the liquid proportional to the force to flow outwardly through the opening.

3,570,722

PUMP UNIT

Torsten C. O. Montelius, Djursholm, Sweden, assignor to Aktiebolaget Imo-Industri, Stockholm, Sweden

Filed Apr. 23, 1969, Ser. No. 818,599
Claims priority, application Sweden, May 8, 1968, 6229/68
Int. Cl. G01f *11/00;* **B67d** *5/40*
U.S. Cl. 222—333 **4 Claims**



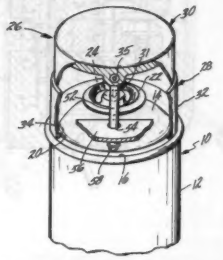
A pump unit for use in a tank adapted to be filled with hydraulic fluid is provided and members suspend the pump and motor assembly in the fluid tank normally below the fluid level. The suspending members connect to a cover on the tank by means of vibration dampening means.

3,570,723

ACTUATOR-CUP ASSEMBLY FOR AEROSOL CONTAINER

Paul M. Kotuby, Naugatuck, Conn., assignor to The Risdon Manufacturing Company, Naugatuck, Conn.

Filed Feb. 6, 1969, Ser. No. 797,147
Int. Cl. B65d *83/14*
U.S. Cl. 222—402.13 **9 Claims**



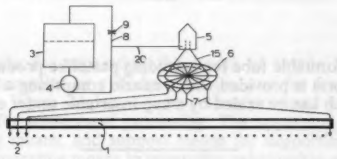
An actuator-cap assembly for a valved aerosol dispenser, comprising a cap mountable on the top of the dispenser and supporting a movable actuator button adapted to be manually depressed axially to control the discharge valve of the dispenser. Cooperable guiding members are provided on the actuator button and the cap to effect balanced axial reciprocation of said member relative to the dispenser, detent means also being provided by said guiding members to prevent accidental separation of the cap and actuation after initial assembly and before mounting on an aerosol container.

3,570,724

APPARATUS FOR DISCHARGING LIQUID FERTILIZER IN LARGE DROPS

Freerk J. Fontein, Heerlen, and Martinus Ploeg, Brunssum, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

Filed July 8, 1968, Ser. No. 750,417
Claims priority, application Netherlands, July 7, 1967, June 17, 1968, 6,709,518;6,808,518
Int. Cl. B67d *3/00*
U.S. Cl. 222—478 **4 Claims**

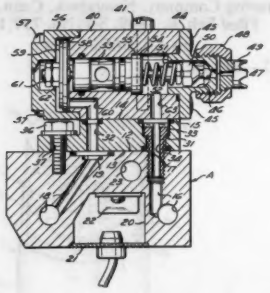


Apparatus for discharging liquid fertilizer in the form of large drops, includes a catch vessel having in its sectoral channels bottom a plurality of drain openings through which liquid fertilizer delivered thereto from a liquid fertilizer distributor flows under gravity through drip tubes connected to the drain openings onto the ground. The distributor located centrally above the bottom of the catch vessel can be a vortex chamber or a combination of feed pipe and target plate.

3,570,725
APPLICATOR HAVING A FIXED MODULE WITH STATIC PARTS AND A REMOVABLE MODULE WITH MOVING PARTS

Robert G. Baker, Bay Village, and Samuel R. Rosen, Lorain, Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed Nov. 15, 1968, Ser. No. 776,177
Int. Cl. B67d 3/00
U.S. Cl. 222—504 10 Claims

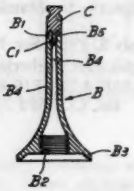


A fluid-operated modular apparatus for extruding and applying viscous liquids such as molten adhesives. The apparatus includes a gun in the form of a readily removable module that attaches to a fixed service block module which receives the supply lines for the viscous liquid and the operating air for example. The service block and gun have passages which register when the apparatus is assembled whereby the gun may be easily removed from the fixed service block and replaced without disconnecting any fluid lines or other service equipment.

3,570,726
DEFORMABLE TUBE WITH NOZZLE FOR EXTRUDING PASTELIKE PRODUCTS IN FLATTENED FORM

Vincenzo Pomodoro, Villaguardia, Italy, assignor to Neotis S.p.A., Villaguardia, Como, Italy

Filed May 9, 1968, Ser. No. 727,864
Claims priority, application Italy, May 16, 1967, 8752/67
Int. Cl. B65d 3/04
U.S. Cl. 222—546 3 Claims



A deformable tube for extruding pastelike products in flattened form is provided with a nozzle comprising a laminating slit which can be sealed by a cap insertable under elastic constraint.

3,570,727
MOLD EJECTION ASSEMBLABLE TWO-PIECE CAP

Jack V. Croyle, Woonsocket, R.I., assignor to Dart Industries Inc., Los Angeles, Calif.

Original application Apr. 8, 1966, Ser. No. 541,202, now Patent No. 3,461,488, dated Aug. 19, 1969. Divided and this application Jan. 23, 1969, Ser. No. 833,827
Int. Cl. B65d 47/20
U.S. Cl. 222—554 3 Claims

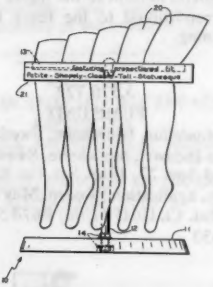
A two-piece container closure which can be opened to form a dispenser. The closure includes a fixed part and a movable part which operates with the fixed part to open and close the dispenser. The fixed part top wall is provided with an opening and a skirt member downwardly directed from the peripheral area of the opening. The skirt member includes a plurality of downwardly, inwardly directed, spaced, separate flexible flanges. The movable part includes a valve member which comprises an imperforate base and sidewalls downwardly positioned from the top wall which are inwardly directed and provided with at least one dispensing opening.

The movable part is positioned within the top wall opening for movement relative to the fixed part and so that the opening in the valve sidewalls will register with the spaces between the flanges in the dispensing position. The flanges are flexed downwardly by the valve member when the valve member is retained within the top wall opening. The downwardly flexed flanges are biased upwardly causing an intimate face contact between the valve member sidewalls and the flexible flanges.

3,570,728
HOSIERY DISPLAY STAND

Frank P. DeWitt, Skaneateles, and David E. Gregory, Auburn, N.Y., assignors to Shoe Form Co. Inc., Auburn, N.Y.

Filed Dec. 15, 1969, Ser. No. 885,186
Int. Cl. D06c 5/00
U.S. Cl. 223—75 5 Claims

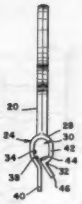


A display stand for hosiery has a plurality of leg-simulating forms adapted for the display of hosiery thereon. A shelf member of clear plastic is supported horizontally above a flat base member by a tubular support member. Holes through the shelf member are adapted to have the clad forms inserted toe-down therethrough and are of such a dimension that the upper end of the forms cannot pass through the holes. Flat, relief, or full forms may be used, the holes in the shelf member conforming to the shape of the forms.

3,570,729
GARMENT HANGER

Benjamin Zuckerman, 50 W. 72nd St., New York, N.Y.

Filed Sept. 17, 1969, Ser. No. 858,825
Int. Cl. A47j *51/08*
U.S. Cl. 223—96 3 Claims

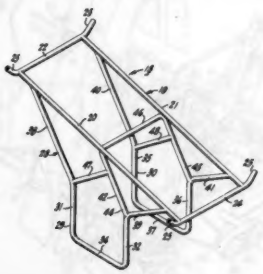


The garment hanger, used for supporting waisted garments comprises, a support member, having a hook extending upwardly therefrom, the hook being removably connectable to a display bar, the outer extremities of the support member having waistband support members which extend downwardly therefrom. The waistband support members are generally oval in shape, the long axis being transverse to the support member and being open at its lower end. At the open end of each waistband support member, an angular surface is provided which terminates in an extension member which is in alignment with the long axis thereof while a second extension member extends downwardly at an angle parallel to the angular surface forming a lip internally of the waistband support members whereby the waistband of a garment is insertable between the two extension members and retainable in the waistband support members.

3,570,730
CANOE TRANSPORTING RACK

Charles M. Stevens, 44681 Camellia Drive, Fremont, Calif., and Loren N. Stevens, 21265 Garden Ave., Hayward, Calif.

Filed July 22, 1969, Ser. No. 845,125
Int. Cl. B68c *1/20*
U.S. Cl. 224—42.11 7 Claims

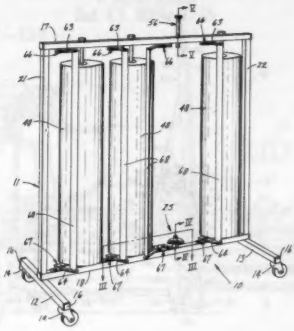


A supporting frame by means of which a canoe or like boat can be transported on the back of a pack animal. The frame includes a generally rectangular main frame having integral support brackets at each of its corner adapted to receive the gunwales of differently sized canoes. Leg structures depend from the main frame and the lower end portion of each structure is adapted to be received within a saddle bag or the like on the pack animal. Each of the leg structures is angularly related to the main frame so that the main frame is inclined with respect to the back of the pack animal when the lower portions of the leg structures are received within the saddle bags so that the forward end of the canoe can extend over the head of the pack animal.

3,570,731
WHEELED SUPPORT FOR UPRIGHT ROLLS

Edward Waltz, Grand Rapids, Mich., assignor to The E. O. Bulman Manufacturing Co., Inc., Grands Rapids, Mich.

Filed May 26, 1969, Ser. No. 827,564
Int. Cl. B26f *3/02*
U.S. Cl. 225—38 8 Claims

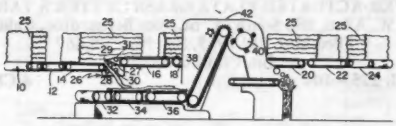


A wheeled, upright frame having top and bottom members. The bottom member has a plurality of spaced upwardly extending spindles, each spindle being adapted to support the lower axial end of an upright roll and being spaced from the nearest portion of the top member a distance greater than the length of the roll. A plurality of upper spindles are slideably disposed within openings in the top member and coaxial with the lower spindles. A plurality of cutting bars are pivotally supported upon and extend between the top and bottom members for engagement with said rolls.

3,570,732
TEXTILE BALE LAYER SEPARATOR

James K. Merck, Pendleton, S.C., assignor to Maremont Corporation, Chicago, Ill.

Continuation-in-part of application Ser. No. 620,098, Mar. 2, 1967, now abandoned. This application Dec. 13, 1968, Ser. No. 787,296
Int. Cl. B26f *3/02*; B26d *4/00*
U.S. Cl. 225—94 15 Claims

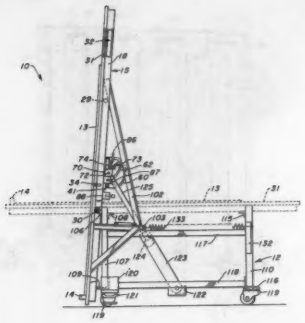


Apparatus for separating the layers of textile bales, of either rectangular or cylindrical shape, and for feeding the separated layers to an opener, blender, card or other machine for subsequent processing. The apparatus includes separating means, and support means for supporting a bale and the separating means in separating relationship with each other and for providing relative motion between them. The separating means includes a parting tension mechanism for tensioning the fibers at the parting line between the bale and the layer being separated from it and producing the parting line ahead of the separating means, and also includes a blade for the removal of any fibers not successfully acted upon by the parting tension. The apparatus may be constructed so that the bale is stationary and the separating means is moved, or vice versa. A conveyor mechanism is provided for conducting each parted layer intact from the bale and to another machine, for subsequent processing.

3,570,733
POWER-ACTUATED PLATE GLASS CUTTER'S TABLE

Byron W. Allen, 188 South "I" St., San Bernardino, Calif.

Filed Nov. 18, 1968, Ser. No. 776,526
Int. Cl. B26f *3/00*
U.S. Cl. 225—104 3 Claims



A 12 foot by 9 foot flat carpeted table pivotally mounted on a caster-supported chassis about a horizontal axis located at a height of about 3 feet from the ground and tiltable by compressed air from a position in which the table inclines slightly towards said chassis to a position in which the table is horizontally supported by said chassis. Pegs extending from the table near the lower edge thereof support a sheet of plate glass inclined against the table, said sheet rocking with the table into horizontal position for a glass cutting operation. A glass breaking bar extends lengthwise of the table, said bar lying in a slot formed in the table and being air powered to be rapidly ejected from below the glass supporting surface of the table to a position substantially above said surface when a glass sheet has been scored along a given line and then the sheet shifted so that the line of said score overlies said bar whereby the upward power shifting of said bar breaks said sheet along the line of said score.

The table is provided with a series of air jets delivering compressed air simultaneously between the table and a heavy sheet of plate glass resting thereon, with the table disposed horizontally, to greatly facilitate the manual shifting of said sheet from one position to another on said table as required in the performance of a cutting operation on said sheet.

3,570,734
POWER-ACTUATED PLATE GLASS CUTTER'S TABLE

Byron W. Allen, 188 South "I" St., San Bernardino, Calif.

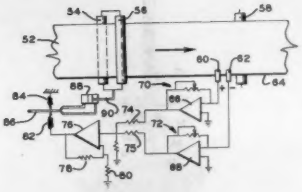
Filed Mar. 10, 1969, Ser. No. 805,467
Int. Cl. B26f *3/00*
U.S. Cl. 225—104 4 Claims

A flat table pivotally mounted to rotate about a horizontal axis from a position in which the table is slightly inclined from vertical to a horizontal position there being pegs extending from the table near the lower edge thereof to support a sheet of plate glass inclining against the table, said sheet rocking with the table to horizontal position for a glass cutting operation. A glass-breaking bar is confined in a slot provided in the table and is reciprocable upwardly broadside from said slot by a multiple toggle mechanism to break a sheet of glass lying on said table along a score line cut in said sheet and aligned with said bar.

3,570,735
METHOD AND APPARATUS OF GUIDING MOVING WEBS

Robert S. Kurz, Des Plaines, Ill., assignor to GPE Controls, Inc, Morton Grove, Ill.

Filed Nov. 18, 1968, Ser. No. 776,486
Int. Cl. B65h *23/02*
U.S. Cl. 226—3 15 Claims

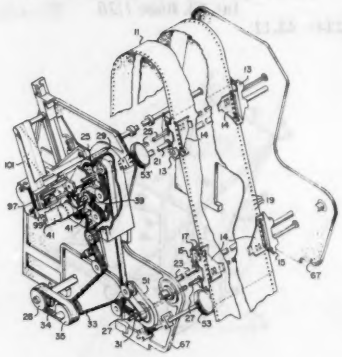


A method and apparatus for controlling the lateral position of a moving strip or web by sensing both the instantaneous lateral position of at least one edge of the web and the instantaneous angle between the actual path of travel of the web and the desired or ideal path. Appropriate signals commensurate with lateral position and angle are developed and combined to provide a control signal which sets the rate at which the web moves or "walks" laterally toward the desired position. The sensors may be positioned in proximity to the point at which control is desired without the usual sacrifice of stability associated with such positioning.

3,570,736
PAPER TENSION AND REGISTRATION APPARATUS

Raymond A. Skiba, Detroit, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Jan. 6, 1969, Ser. No. 789,341
Int. Cl. B65h *23/18*
U.S. Cl. 226—108 3 Claims



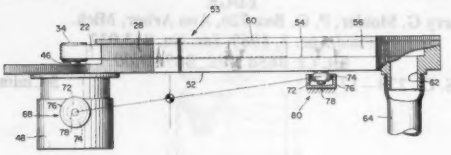
Apparatus for adjusting the phase relationship between a combination of shafts which are rotated by a common endless loop drive means. The combination of shafts may advance web material of indeterminate length, such as paper from a roll, and/or advance a web and an endless format tape controlling the advance of the web. Adjusting the phase relationship between the shafts results in a corresponding change in the tension of the web being advanced and/or in the registration between the web and the format tape, respectively. Specifically, a pulley arrangement varies the respective lengths of the parts of the drive means between the shafts, and one shaft experiences a different rotation or phase adjustment relative to the other.

3,570,737

MOUNTING ARRANGEMENT

Herbert F. Sanford, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 4, 1968, Ser. No. 773,224
Int. Cl. B65h 17/20
U.S. Cl. 226—188 8 Claims



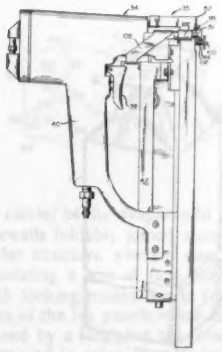
A web drive mounting arrangement is shown for isolating the web drive from shock and vibration and the stress caused thereby having a plate mounted within a main frame. A driving motor is mounted on the drive plate for driving a capstan which drives a web across a web contacting surface thereof. First and second spherical self-aligning bearings extend from the driving motor and are rotationally mounted upon the main frame. A third bearing is mounted between the plate and the main frame. The plane formed by the three bearings passes through the center of gravity of the web driving arrangement, while the third bearing mounts at the center of percussion of the web driving arrangement. This mounting arrangement thereby prevents vibrational forces parallel to the web contacting surface from causing deflections of that surface and causes vibrational forces perpendicular to the web contacting surface to produce a rotational motion about the first and second bearings attached to the driving motor.

3,570,738

TOOL FOR APPLYING FASTENERS

Richard W. Pabich, c/0 Acme-Lane Co., 4904 W. Fullerton, Chicago, Ill., and E. Louise Treiber, Glenview, Ill.

Continuation-in-part of application Ser. No. 689,939, Nov. 24, 1967, now Patent No. 3,429,013, dated Feb. 25, 1969, and a continuation-in-part of 777,652, Nov. 21, 1968, and a continuation-in-part of 800,362, Feb. 12, 1969. This application Apr. 24, 1969, Ser. No. 819,517
Int. Cl. B27f 7/06
U.S. Cl. 227—8 10 Claims



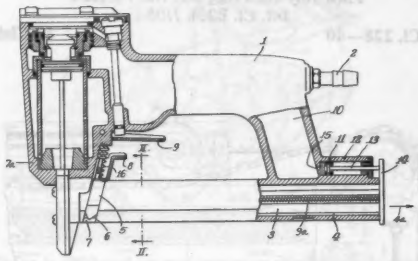
Tool attachments associated with air tools that force nails or other fasteners into members. The tool attachments are adapted to store, feed and to pivotally mount uniquely formed wing headed fasteners with nails also stored by the tool for releasably holding a first member, such as a cabinet backing in a position relative to a second member such as a cabinet frame therebehind.

3,570,739

PNEUMATICALLY OPERATED FASTENER DEVICE

Dieter Volkmann, Leinstrasse 49, 3057 Neustadt am Rubenberge, and Juergen Korth, Birkenweg 7, 3001 Berenbostel, Germany

Filed July 8, 1968, Ser. No. 743,185
Claims priority, application Germany, July 7, 1968, P 16 03 838.3
Int. Cl. B25c 5/16
U.S. Cl. 227—127 6 Claims



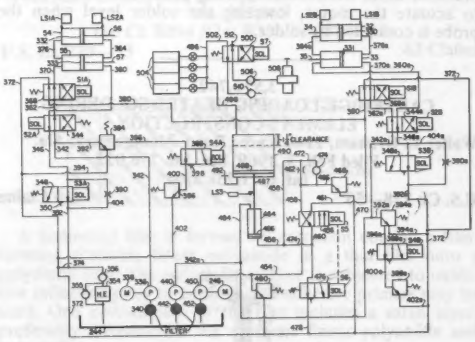
In the magazine of a pneumatically operated fastener driving device, to accelerate the loading of the magazine with fasteners the bolt for retaining the end plate of the magazine is located and constructed to be actuated by the operator's finger which actuates the trigger of the device. The end plate of the magazine may be moved by compressed air into position for loading fasteners.

3,570,740

APPARATUS FOR FRICTION WELDING

Alex F. Stamm, Rochester, Mich., assignor to Rockwell-Standard Company, Pittsburgh, Pa.

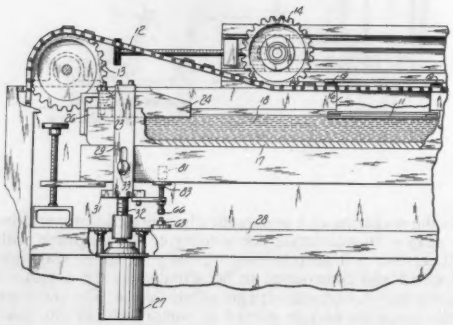
Filed Aug. 16, 1968, Ser. No. 753,214
Int. Cl. B23k 27/00
U.S. Cl. 228—2 3 Claims



A friction welding apparatus and method wherein workpieces such as the center section and wheel bearing end spindles of a vehicle axle housing are frictionally welded together by rotating the end spindles and axially accelerating the rotating end spindles towards opposite ends of the center section, decelerating the advancing end spindles as they approach the center section so that they gently contact the center section, abruptly and materially increasing the axial thrust urging the rotating end spindles against the center section immediately upon contact, then gradually increasing the axial thrust applied to the rotating end spindles from the abruptly increased thrust level, stopping rotation of the end spindles, and abruptly increasing the axial thrust again to a much higher level and holding the axial engagement pressure at this last level until the welds, which are formed when the

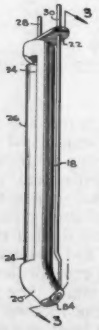
end spindles stop rotating, have cooled. A control and sequencing circuit provides for the automatic welding of the end spindles to the center section either simultaneously or sequentially.

3,570,741
LEVEL CONTROL SYSTEM FOR LIQUID SOLDER
Vicent A. Corsaro, Haverhill, and Norman F. Smith, Methuen, Mass., assignors to Western Electric Company Incorporated, New York, N.Y.
Filed July 16, 1968, Ser. No. 745,254
Int. Cl. B23k *1/08*
U.S. Cl. 228—40 **12 Claims**



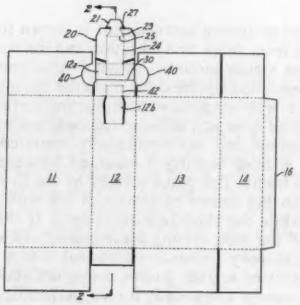
Two drag chains advance a succession of articles over a cast iron displacement block toward floating contact with molten solder in a solder tank. The block is partially submerged in the molten solder. The displacement block is heated by the molten solder and, as a result, preheats the advancing articles by radiation. Two probes are located at predetermined normal working level limits for the solder in the tank. A control circuit, including the probes and a motor, regulates the vertical position of the displacement block, normally maintaining the solder level within the predetermined limits. A third, overflow preventing probe causes the circuit to actuate the motor, lowering the solder level when the probe is contacted by solder.

3,570,742
CARTRIDGE-LOADING HEATED SOLDERING ELEMENT CONSTRUCTION
Walter E. Graham, 1140 Karen Raod, Montgomery, Ala.
Filed Feb. 3, 1969, Ser. No. 796,022
Int. Cl. B23k *3/04*
U.S. Cl. 228—53 **10 Claims**



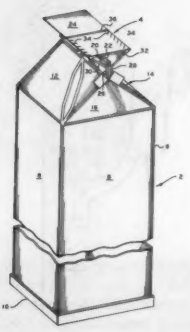
An electrically heated soldering element with a removable cartridge of solder received within a cavity in the element with a spherical valve mounted in the tip of the element and communicating with a solder-dispensing tubular extension on the cartridge so that inward movement of the valve sphere will open the valve to allow dispensing of melted solder from the cartridge.

3,570,743
CARTON WITH INTEGRAL SPOUT ADJACENT THE EDGE
Harry G. Mohler, P. O. Box 526, Ann Arbor, Mich.
Filed Apr. 3, 1969, Ser. No. 813,032
Int. Cl. B65d *5/72*; **B67d** *3/00*
U.S. Cl. 229—17 **5 Claims**



This is an improved carton for packing loose materials such as sugar.

3,570,744
GABLE-TOP-CONTAINER HANDLE
Ernest L. Smith, Kansas City, Mo., assignor to Phillips Petroleum Company
Filed July 30, 1969, Ser. No. 845,985
Int. Cl. B65d *2/28*
U.S. Cl. 229—17 **10 Claims**

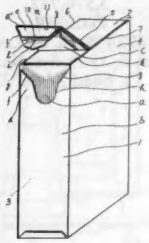


Handles and paperboard blanks for forming handles for gable-top containers.

3,570,745
RECLOSEABLE LID FOR A CONTAINER FOR POWDERED CHEMICALS AND THE LIKE

Yoshiharu Aoki, Fuse-shi, and Katsuyuki Shimada, Yodogawa-ku, Japan, assignors to Kinki Printing Company Limited, Osaka, Japan

Filed Jan. 21, 1969, Ser. No. 792,296
Int. Cl. B65d 5/72
U.S. Cl. 229—17 3 Claims

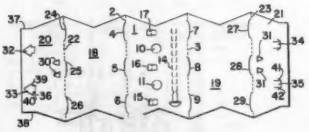


One of the sidewalls of a rectangular container has a double layer of inner and outer walls. The upper portion of the outer wall is bent and extended beneath the inside of a top wall and pasted thereto. The upper side portions of the outer wall are provided with a notched line. Also the end portions of the top wall near said double layer are provided with notched lines. By severing and opening said notched line and lines, the lid of a container for powdered chemicals and the like can be opened. And even after its lid has been opened, it is maintainable in its closed condition by inserting the tongue into behind said double layer.

3,570,746
ARTICLE CARRIER AND METHOD OF INTERLOCKING A PAIR OF PANELS IN FACE CONTACTING RELATION

Prentice J. Wood, Jonesboro, Ga., assignor to The Mead Corporation

Filed Apr. 1, 1969, Ser. No. 811,859
Int. Cl. B65d 5/04, 75/00
U.S. Cl. 229—40 2 Claims

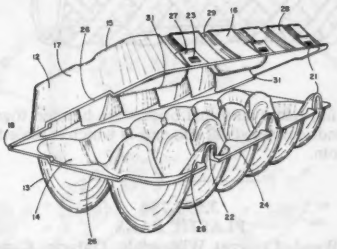


An article carrier of the wraparound type having top, bottom and sidewalls foldably joined along their side edges to form a tubular structure wherein one wall is a composite panel incorporating a pair of face contacting lap panels is provided with locking means in the form of a locking tab formed in one of the lap panels which is inserted through an opening defined by a retaining tab formed in the other lap panel and disposed in coincidental relationship with respect to the locking tab. Formation of the lock is facilitated by angularly extending slits formed in the lap panel in which the opening is formed. One end of each slit is in communication with one side of the opening. During formation of the lock the laterally projecting shoulders of the arrowhead type locking tab are received by the slits so as to facilitate the formation of the lock. Upon completion of the lock the lateral projections of the locking tab are out of registry with the slits.

3,570,747
CARTON AND LATCH CONSTRUCTION

Roderick F. McKenna, Hyannisport; Robert McCormick, Barnstable; Howard A. Rohdin, Waquoit, Mass., and Don Tucker, Southport, Conn., assignors to Packaging Industries, Inc., Hyannis, Mass.

Filed Jan. 8, 1969, Ser. No. 789,856
Int. Cl. B65d 45/00
U.S. Cl. 229—44 6 Claims

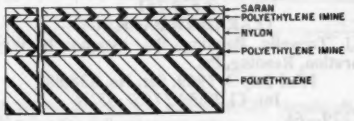


There is disclosed an egg carton or similar article made of foamed polystyrene or like material comprising a top portion and a bottom portion hinged along one side and releasably fastened along the other side and/or ends by one or more latching means. The bottom portion of the carton having the egg cells is molded such that a plurality of vertical protrusions are formed along its edge, each protrusion having an outwardly projecting hook at its upper end. These hooks lock into catches or detents molded into the wall of the top portion. The latching means do not extend beyond the edges of the carton and thus do not increase its width or length. Further means are provided to resist opening when the cartons are stacked.

3,570,748
COMPOSITE FILM AND METHOD

James Warren Coyle, Montville, N.J., and Louis John Marsella, Leominster, Mass., assignors to Standard Packaging Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 298,278, July 29, 1963, now abandoned. This application June 29, 1966, Ser. No. 565,667
Int. Cl. B29d 7/24; B32b 27/08, 31/12
U.S. Cl. 229—53 42 Claims



A laminated film is formed by extrusion coating a film-forming synthetic linear polyamide in a thin film onto a polyolefin film. The polyolefin surface is subjected to oxidative influence prior to coating, and adhesive primers may be used. One embodiment of the film includes a saran layer, preferably intermediate the synthetic linear polyamide and polyolefin.

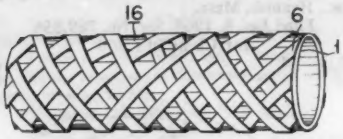
3,570,749
HEAVY DUTY BAGS

Wasuke Sato, Kawasaki-shi; Fumio Iriko, Tokyo; Sadao Yamamoto, Kawasaki-shi; Mitsumaro Fujisawa, and Shigeyuki Hatakeyama, Yokohama-shi, Japan, assignors to Showa Denko K. K., Tokyo, Japan

Filed Aug. 5, 1969, Ser. No. 847,647
Claims priority, application Japan, Aug. 9, 1968, Dec. 29, 1968, Dec. 20, 1968, April 11, 1969, April 11, 1969, April 11, 1969, 43/56113, 43/110790, 43/110791, 44/32513, 44/32514, 44/32515
Int. Cl. B65d 33/02
U.S. Cl. 229—55 19 Claims

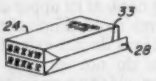
Heavy duty bags wherein stretched tapes made of synthetic resin such as high density polyethylene or polypropylene are

spirally wound in opposite directions in a manner to intersect each other to form a plurality of superposed cylindrical bodies. The superposed portions of the intersecting stretched



tapes forming said cylindrical bodies are bonded together to form a cylindrical network, one end of which is sealed to provide a bottom.

3,570,750
PLASTIC BAGS
James R. Wood, Crescent Willowdale, Ontario, Canada, assignor to E. S. & A. Robinson (Canada) LTD., Toronto, Ontario, Calif. Canada
Filed Jan. 21, 1969, Ser. No. 792,555
Claims priority, application Canada, Oct. 11, 1968, 032,319
Int. Cl. B65d *31/00*
U.S. Cl. 229—58 **3 Claims**



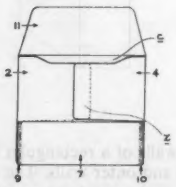
A method for producing "square bottom" plastic bags having printing on one face and the entire bottom wherein one film forms the pointed face and bottom and a second film forms the opposed face, wherein the two films are fed into face to face relationship and longitudinally sealed and subsequently transversely sealed and cut with a gusset on one side of the longitudinal seal. Preferably two identical bags are produced simultaneously by locating the longitudinal seal in the center of the film and forming a gusset on each side of the longitudinal seal.

3,570,751
TEAR-OPEN PACKAGE
Robert J. Trewella, Reading, Pa., assignor to Wyomissing Corporation, Reading, Pa.
Filed July 3, 1969, Ser. No. 838,881
Int. Cl. B65d *17/20, 65/26*
U.S. Cl. 229—66 **14 Claims**

A package formed by a sheet of flexible packaging material having a tear-open seam extending across a face or along an edge thereof. The tear-open seam is characterized by a flap formed by an edge of the package sheet and a tearable insert strip which secures the flap to the adjacent sheet edges.

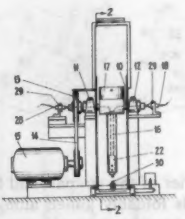
The method of making the package includes the steps of applying spaced transverse stripes of adhesive to a continuous flat web of packaging material, depositing articles to be packaged on the web between the applied adhesive stripes, folding the package web so that the edges thereof are disposed in overlying relation, introducing an adhesive coated insert web between the overlying web edges, sealing the transverse adhesive stripes, and cutting the web along the sealed adhesive stripes.

3,570,752
FOLDER
Robert E. Sczesniak, 4734 Wren, St. Louis, Mo.
Filed May 6, 1969, Ser. No. 822,192
Int. Cl. B65d *27/06, 27/08*
U.S. Cl. 229—75 **1 Claim**



A folder formed from a single blank of paper or other suitable cellulosic material having a main panel, side flaps for partial overlapping relationship within a plane substantially parallel to that of the main panel, a base flap foldable into partial overlying relationship to the said side flaps and having its normally free edge terminating spacedly from the transverse centerline of the main panel and a closure flap disengagingly receivable within a pocket developed by said base flap and said side flaps.

3,570,753
CENTRIFUGES
Colin Kerby, Pier St. Kilda, Victoria, Australia
Filed Dec. 12, 1968, Ser. No. 791,842
Claims priority, application Australia, Dec. 14, 1967, 31178/67
Int. Cl. B04b *9/00, 15/02*
U.S. Cl. 233—11 **10 Claims**

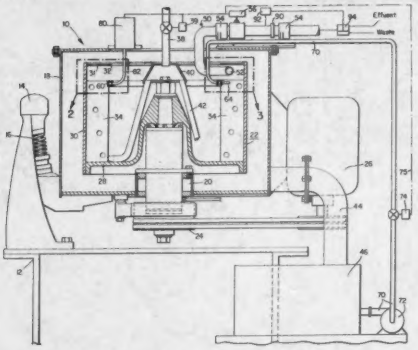


A continuous centrifuge having a balanced head mounted for axial rotation in bearings. A radially extending arm including a cell is mounted at its extremity to receive fluid from a source through a fluidtight bearing coaxial with one of the head bearings. Means are provided for the discharge of the fluid from the cell through a second fluidtight bearing coaxial with the other head bearing. Means automatically discharge accumulated solids from the cell during rotation of the head. The head may include a second arm including one or more further cells and means may be provided to circulate solid free fluid discharged from the first cell through said further cell or cells prior to discharge through the second fluidtight bearing.

3,570,754
CENTRIFUGE APPARATUS

William J. Kirkpatrick, Springfield, Del., assignor to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 593,338, Nov. 10, 1966, now Patent No. 3,407,999, dated Oct. 29, 1968. This application July 18, 1968, Ser. No. 745,945
Int. Cl. B04b *11/00*
U.S. Cl. 233—20 9 Claims

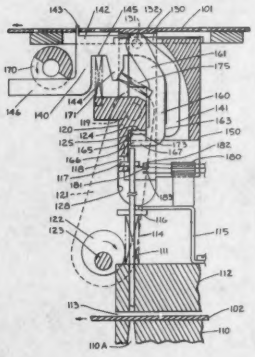


Heavy phase liquid, centrifugally separated from light phase liquid and accumulated on the peripheral wall of a centrifuge bowl, is removed by a skimmer actuated by a heavy phase level detector. The latter includes structure defining an inwardly facing annular pocket mounted for rotation with the bowl and provided with a passageway leading outwardly from the pocket to a position outward of an overflow lip for the light phase liquid, also means for supplying control liquid to the pocket and a sensor which responds to accumulations of heavy phase liquid obstructing the outer end of the passageway

3,570,755
PUNCHED-HOLE RESPONSIVE DEVICE

Frederick W. Pfleger, 1152 Barbara Drive, Cherry Hill, N.J.

Filed Apr. 15, 1969, Ser. No. 816,242
Int. Cl. G06k *1/14*
U.S. Cl. 234—86 12 Claims

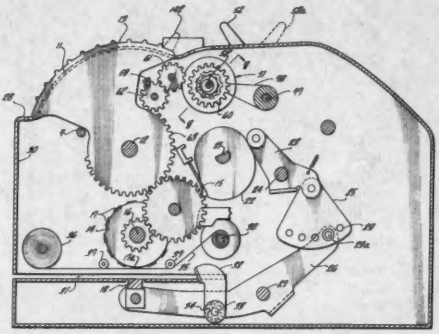


A punched-hole responsive device including a shift mechanism movable toward and away from a source document and carrying a feeler mechanism for sensing the presence or absence of a punched hole, which feeler mechanism in turn operates an output mechanism responsive to punched holes sensed.

3,570,756
CHECKWRITER

Michael W. Grey, Azusa, Calif., assignor to Addmaster Corporation, San Gabriel, Calif.

Filed May 17, 1968, Ser. No. 730,152
Int. Cl. G06c *29/00*; G06k *15/06*
U.S. Cl. 235—58 12 Claims

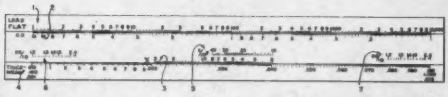


A checkwriter incorporating an accumulator and differentially settable sectors for entering amounts to be printed on checks and for subtracting such amounts from the accumulator as well as for adding into the accumulator amounts representing deposits in the user's bank account. The checkwriter is automatically locked up when an amount is overdrawn from the accumulator or when an amount greater than a predetermined amount is entered. The checkwriter also incorporates control means which are normally set to cause subtract operations but which may be selectively set to cause an add operation and which are automatically returned to subtract controlling condition following an add operation.

3,570,757
SLIDE RULE FOR BELLEVILLE SPRINGS

Joseph W. Wells, Bristol, Conn., assignor to Associated Spring Corporation, Bristol, Conn.

Filed July 22, 1968, Ser. No. 746,394
Int. Cl. G06g *1/02*
U.S. Cl. 235—70 4 Claims



This invention provides a mechanically simple slide rule which will solve the following equations.

$$P=\frac{Ef}{(1-\sigma^2)\,Ma^2}\,[(h-f)\,(h-f/2)\,t+t^3] \qquad (1)$$

$$S_c=\frac{Ef}{(1-\sigma^2)\,Ma^2}\,[C_1\,(h-f/2)+C_2t] \qquad (2)$$

$$S_{ts}=\frac{Ef}{(1-\sigma^2)\,a^2}\,[T_1\,(h-f/2)+T_2t] \qquad (3)$$

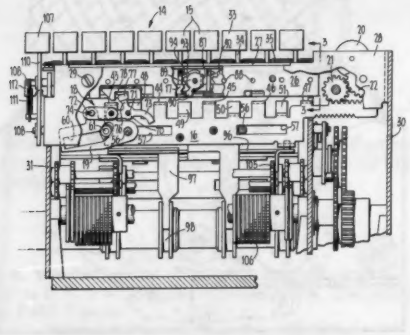
3,570,758
VALUE-ENTERING MECHANISM

Cecil F. Clemons, San Leandro; George C. Wu, Newark, and Nathaniel F. Hawthorne, Alameda, Calif., assignors to The Singer Company

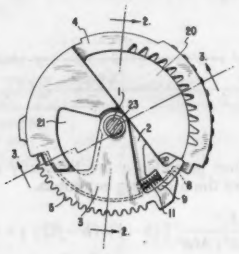
Filed May 23, 1969, Ser. No. 827,351
Int. Cl. G07g *1/00*; G06c *7/02*
U.S. Cl. 235—101 10 Claims

A plurality of series of ordinally arranged depressible value keys, each ordinal row of keys being effective to control a differential adjustment of a corresponding value selection

slide in accordance with the selective depression of a value key. An interponent for each key is rocked by the selective depression of a key in a given row of keys to adjust a latch-releasing slide controlling the movement of a latch member from an active to an inactive position. When moved to its inactive position, the latch member enables the differential adjustment of a corresponding selection slide under the influence of a spring and in accordance with a value key depressed. Thereafter, the latch member retains a latch-releasing slide in its adjusted position, locking the depressed key in its depressed condition, and preventing depression of the other keys in the corresponding row of keys. The latch member and latch-releasing slide are returned to their initial positions upon power restoration of the adjusted selection slide.

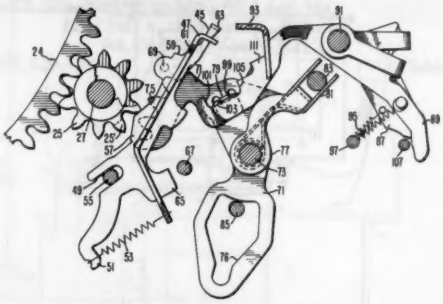


3,570,759
SWITCHING MECHANISM
Alfred Hesse; Wolfgang Bindel, and Alfred Keiter, Wilhelmshaven, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany
Filed Dec. 23, 1969, Ser. No. 887,560
Claims priority, application Germany, Dec. 23, 1968, P 18 16 497.1
Int. Cl. G06c *7/10, 9/00, 15/26*
U.S. Cl. 235—133 **8 Claims**



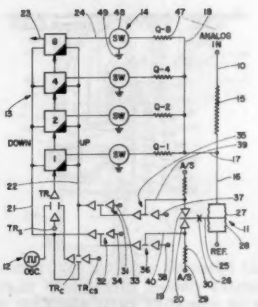
A switching mechanism for a mechanical decade counter has a movable setting member with a projection and a movable transfer member with gear teeth. One of these members has a projection and the other a portion defining a recess. A spring is so arranged that it transmits force between the setting member and the transfer member. The projection and the recess combine to form a bearing which permits the setting member and the transfer member to be fitted together in such a manner that in the assembled state one covers at least a part of the other. One of the members, preferably the transfer member, is constructed from an elastic material. The switching mechanism may be either a rotary mechanism or a linear mechanism. In the former case, the recess is in the transfer member at its center of arc and fits over a centrally located boss on the setting member. Overlapping surfaces are provided on the periphery of each member. In the latter case, the transfer member is U-shaped with the projection on one of its legs. More than one bearing may be provided on each switching mechanism.

3,570,760
TWO-DIRECTION CARRY MECHANISM FOR AN AMOUNT ACCUMULATOR
Donald R. Crain, and Edward R. Huber, Livonia, Mich., assignors to Burroughs Corporation, Detroit, Mich.
Filed Apr. 9, 1969, Ser. No. 815,523
Int. Cl. G06c *15/26*
U.S. Cl. 235—137 **17 Claims**



In a calculating machine, an amount accumulator having a single set of accumulator wheels is provided with reversible bias means responsive to the add or subtract nature of an accumulating operation. This reversible bias means is effective for producing tens transfers in either an add or subtract direction according to the direction of bias established prior to an initial carry stage thereof, such initial carry stage being followed by a completed carry in which adjacent higher order accumulator wheels are rotated by said bias means in a direction consistent with the predetermined direction of rotation of the accumulator wheels during add or subtract operations.

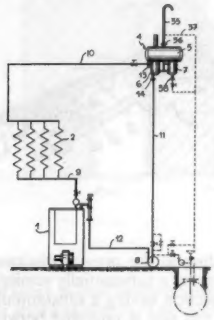
3,570,761
PNEUMATIC ANALOG TO DIGITAL CONVERTER
Richard W. Hatch, Jr., Foxboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed June 19, 1969, Ser. No. 834,733
Int. Cl. G06d *3/00*
U.S. Cl. 235—201 **4 Claims**



A pneumatic analogue to digital transducer based on a matrix of fluidic resistance elements as bleeds to atmosphere from a supply manifold to these elements, with switches in these elements to individually selectively open or close such bleeds to atmosphere, an analogue input branched to the supply manifold on the one hand and to a digital system of operation of such switches on the other hand, this digital system comprising a series arrangement of a balanceable

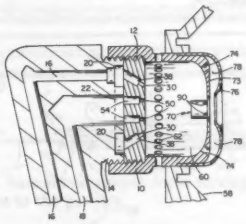
pressure differential device receiving the analogue input, an oscillator gate system used with the differential pressure device, and an up-down fluidic counter actuated by the oscillator gate system to selectively operate the resistance matrix switches in a digital representation of the analogue input.

3,570,762
HEAT TRANSFER FLUID PLANT
Leon J. Wanson, 118, Avenue Isidore Gheyskens, Auderghem, Belgium
Filed Apr. 18, 1969, Ser. No. 817,515
Int. Cl. F24d *3/10*
U.S. Cl. 237—66 **7 Claims**



In a heat transfer fluid plant, an expansion vessel is grouped with a deaerator and a damping receiver in a single structure to be located at the highest point of the plant.

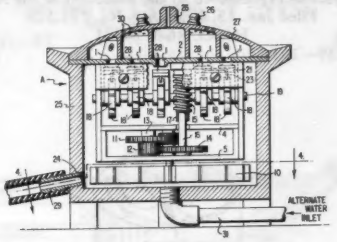
3,570,763
STREAMING
Nathaniel Hughes, Beverly Hills, Calif., assignor to Energy Sciences, Inc., El Segundo, Calif.
Filed Nov. 22, 1968, Ser. No. 778,139
Int. Cl. A01n *17/02*
U.S. Cl. 239—8 **5 Claims**



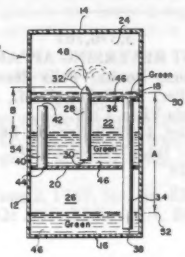
An even number of small holes of circular cross section are arranged adjacent the inlet to a supersonic nozzle sculpted in boundary layer, each small hole being in series with the nozzle and included in a pair of such holes spaced 180° apart at opposite sides of said inlet.

3,570,764
FOUNTAIN APPARATUS
Mitsuo Inoue, Ibaragi, Osaka, Japan, assignor to C.D.M. Kabushiki Kaisha, Kishiwada City, Osaka Prefecture, Japan
Filed Apr. 11, 1969, Ser. No. 815,323
Int. Cl. B05b *17/08*
U.S. Cl. 239—17 **5 Claims**

Fountain apparatus wherein the water rotates a waterwheel for driving the same, with the waterwheel being operatively connected to closure members, each associated with a water nozzle, through a series of gears and cams so as to sequentially emit water through the series of nozzles responsive to rotation of the waterwheel.

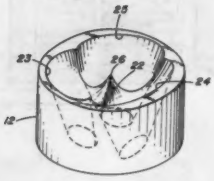


3,570,765
FOUNTAIN
Hilaire G. de Gast, 1508 N. Quinn St., Arlington, Va.
Filed Feb. 20, 1969, Ser. No. 800,857
Int. Cl. B05b *17/08*
U.S. Cl. 239—21 **4 Claims**



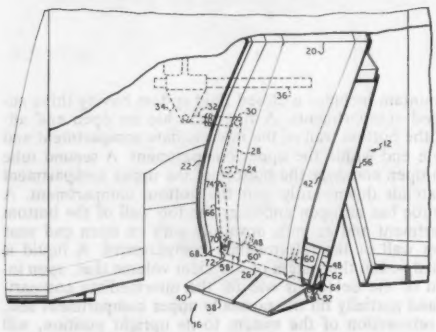
A fountain includes a closed fluid system having three superposed compartments. A first tube has an open end adjacent the bottom wall of the intermediate compartment and a nozzle end within the upper compartment. A second tube has an open end near the bottom of the upper compartment and extends downwardly into the bottom compartment. A third tube has an open end near the top wall of the bottom compartment and extends upwardly with an open end near the top wall of the intermediate compartment. A liquid is provided within the system of sufficient volume that, upon inversion of the device, it will fill the intermediate compartment and partially fill the normally upper compartment and, upon reinversion of the system to its upright position, will flow from the normally upper compartment through the second tube into the normally bottom compartment, displacing air from the bottom compartment into the intermediate compartment through the third tube, displacing liquid from the intermediate compartment through the first tube to cause a liquid jet into flow from the nozzle end into the upper compartment. Several embodiments of the fountain are disclosed. One embodiment includes an auxiliary compartment between the intermediate and bottom compartments to increase the pressure head causing the jet to flow. Another provides two closed fluid systems, one inverted with respect to the other, with compartments of the two systems interspersed in a vertical stack. An additional embodiment includes an upper compartment divided into two chambers with syphon means to transfer liquid received from the jet from the upper chamber to the lower chamber so that fluid may be transferred back through the second tube into the lower compartment. Toy and amusement devices of various types may be employed within the fountain for operation by or for use in conjunction with the jet.

3,570,766
INTEGRAL PLUG AND STRUT NOZZLE
Albert W. Johnson, Austin, Tex., assignor to the United States of America as represented by the Secretary of the Navy
Filed Jan. 15, 1969, Ser. No. 791,528
Int. Cl. B64d *33/04*
U.S. Cl. 239—265.11 2 Claims



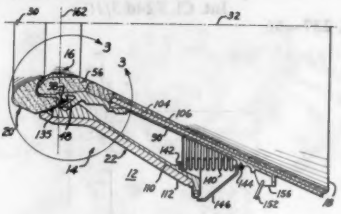
A one-piece exhaust nozzle for rocket motors. It is substantially cylindrical with three funneled inlet holes at its forward end, blending into a single opening at the aft end. A center body, pyramid shaped, forms a contoured inner wall for the nozzle which has a constantly expanding exhaust area.

3,570,767
THRUST REVERSING APPARATUS
Dale W. R. Lawson, Bonita; Felix Hom, La Mesa, and Richard U. Moeller, El Cajon, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
Filed Oct. 1, 1969, Ser. No. 862,725
Int. Cl. B64c *15/04*
U.S. Cl. 239—265.29 15 Claims



Apparatus includes housing to rear of jet nozzle to surround the gas stream. Housing has openings in wall to receive thrust reverser doors which close openings in stowed position and swing to deployed thrust reverse position with trailing edges together. Doors diverge forwardly and leading edges are adjacent housing wall. Doors are curved about longitudinal axis and have end plates at leading edges to divert gas stream forwardly. Each end plate is divided into segments along leading edge pivoted thereto for swinging from parallel to perpendicular position. Segments are overlapped to move as a unit while accommodating curvature of door. In one form, segments are forced to open position by gas flow and returned to stowed position by bumper when doors close. In an another form, yoke within door actuated by movement of doors acts through force linkage to positively swing segments in each direction.

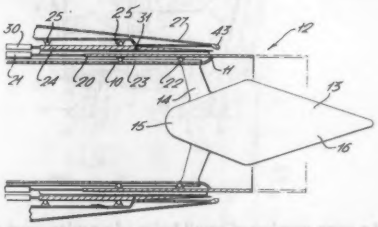
3,570,768
OMNIVECTOR NOZZLE
Carle C. Conway, La Habra, Calif.; Kurt Barth, Farmington, Conn.; David R. Collis, Shingle Springs, and Kjell Steinmo, Fair Oaks, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.
Filed Aug. 8, 1968, Ser. No. 751,202
Int. Cl. B64c *15/04*
U.S. Cl. 239—265.35 12 Claims



A nozzle according to the present disclosure comprises a movable section having a substantially semispherical ball surface, and a fixed section having a substantially semispherical socket surface. A gas seal is provided between the ball and socket surfaces. A load bearing surface, independent of the ball and socket surfaces, is provided for supporting loads between the fixed and movable sections of the nozzle.

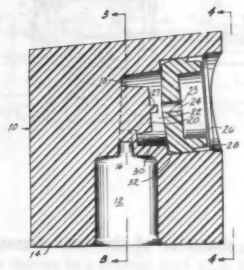
According to an optional and desirable feature of the present disclosure, the ejection load on the movable section is minimized.

3,570,769
JET NOZZLE
Frederick Freeman, Derby, England, assignor to Rolls-Royce Limited, Derby, England
Filed Dec. 11, 1968, Ser. No. 782,900
Claims priority, application Great Britain, Dec. 28, 1967 58860/67
Int. Cl. B64c *15/06*
U.S. Cl. 239—265.39 8 Claims



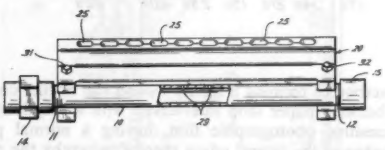
A jet nozzle comprises a cylindrical member whose downstream end is provided with a plurality of angularly spaced-apart, alternately arranged first and second flaps each of whose adjacent paris of longitudinal edges are interconnected by a plurality of lobe wall members, the flaps and lobe wall members being adapted collectively to provide the nozzle with a plurality of angularly spaced-apart lobes, each lobe wall member being pivotally connected along each of its longitudinal edges to the adjacent longitudinal edge of the adjacent flap or lobe wall member, and means for effecting relative radial movement of the first and second flaps so as to alter the radial depth of the downstream end of each of said lobes.

3,570,770
VALVE BUTTON
Ronald F. Ewald, Rolling Meadows, Ill., assignor to Seaquist Valve Company, Cary, Ill.
Filed May 8, 1968, Ser. No. 727,511
Int. Cl. B05b 1/34
U.S. Cl. 239—337 8 Claims



A self-cleaning spray button designed especially for use on aerosol valves for spraying starch. The discharge passageway within the button comprises inlet from the valve stem leading into an annular expansion chamber which connects with a swirl chamber just behind the discharge outlet.

3,570,771
GAS BURNERS
James R. Richardson, and Elsinore M. Addis, 5900 Canal St., Houston, Tex.
Filed Dec. 27, 1968, Ser. No. 787,460
Int. Cl. B05b 1/20
U.S. Cl. 239—566 8 Claims

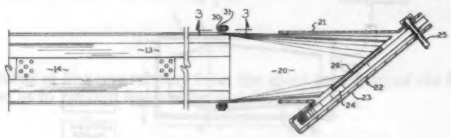


Multiport gas burners of simple form having impingement surfaces adjacent to the gas jets.

3,570,772
DI(4-5 CARBON BRANCHED PRIMARY ALKYL) DITHIOPHOSPHATE PROMOTERS FOR THE FLOTATION OF COPPER MIDDLINGS
Robert Ben Booth, Stamford, Conn.; Herman Hartjens, Ridgewood, N.J., and John Joseph Falvey, Noroton Heights, Conn., assignors to American Cyanamid Company, Stamford, Conn.
Continuation-in-part of application Ser. No. 617,069, Feb. 20, 1967, now abandoned. This application Aug. 22, 1969, Ser. No. 852,504
Int. Cl. B02c 11/00; B03d 1/02, 1/08
U.S. Cl. 241—24 7 Claims

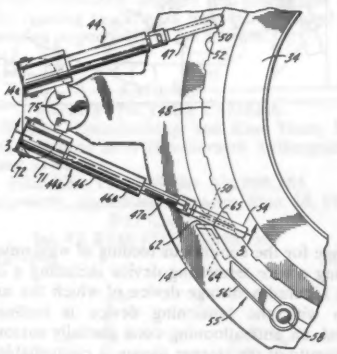
In the flotation of copper sulfides; diisobutyl dithiophosphates, diisoamyl dithiophosphates and di(2-methyl-1-butyl) dithiophosphates give a superior flotation rate, recovery and selectivity as compared with conventional dialkyl dithiophosphates, often permitting a coarser grind, and flotation of middlings, followed by a regrind ultimately resulting in a higher recovery of copper.

3,570,773
CHIPPER FEEDER
John I. Schneider, and John M. Morris, Louisville, Ky., assignors to Rex Chainbelt, Inc., Milwaukee, Wis.
Filed Aug. 15, 1968, Ser. No. 752,812
Int. Cl. B02c 18/22
U.S. Cl. 241—81 8 Claims



A vibratory conveyor specially designed for ruggedness and ability to align elongated pieces of material and feed them through the infeed spout of a power driven chipper provides a virtually jam proof, maintenance free apparatus for reducing random length scrap lumber to chips suitable for use in pulp mills. The conveyor includes a screen section and a metal detecting section, the latter being arranged to stop the conveyor upon detecting any metal in material being fed to the chipper.

3,570,774
CRUSHER ADJUSTMENT
Rudolph J. Gasparac, and Arnold P. Szaj, Milwaukee, Wis., assignors to Nordberg Manufacturing Company, Milwaukee, Wis.
Filed June 2, 1969, Ser. No. 834,197
Int. Cl. B02c 2/00; B24b 41/04; B02c 23/00
U.S. Cl. 241—207 10 Claims

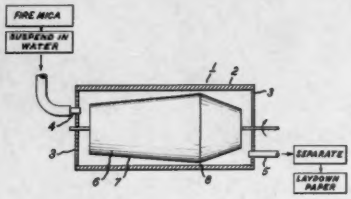


The invention relates to a bidirectional ram structure for rotating a rotatably adjustable bowl in relation to the main frame of a crusher. The invention includes means for normally holding the bowl against unintended rotary movement, and means for rotating the bowl alternatively in opposite rotational directions, depending upon whether the operator desires to increase or to diminish the clearance between the bowl and head of a gyrated head crusher.

3,570,775
MICA DELAMINATION

Donald C. Stavely, Scotia, N.Y., assignor to General Electric Company

Filed Dec. 21, 1967, Ser. No. 692,483
Int. Cl. B02c 4/10, 19/12
U.S. Cl. 241—255 5 Claims

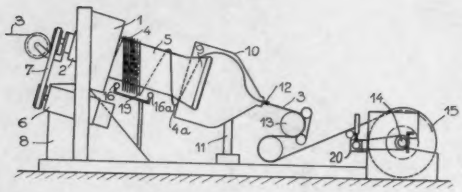


Flakes of micaceous material are delaminated by passing them at increasing speed through a progressively restricted annular space formed by a cylinder and a rotating inner rotor. The finely divided product is useful in making paper.

3,570,776
DEVICE FOR FEEDING WIRE ON TO A BOBBIN

Jean Godderidge, 11 Boulevard Henri Barbusse, 78 Houilles, France

Filed Jan. 2, 1969, Ser. No. 788,600
Claims priority, application France, Feb. 21, 1968, 140713
Int. Cl. B65h 54/00
U.S. Cl. 242—25 5 Claims



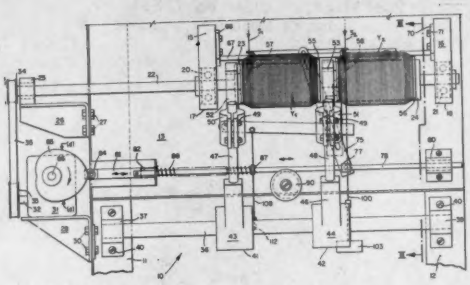
A device for the continuous feeding of wire onto a bobbin comprising a wire tensioning device including a capstan on which is secured a storage device of which the axis thereof common with the tensioning device is inclined to the horizontal, an antiballooning cone partially surrounding the free extremity of the storage device, a controllable brake for the wire disposed between the said cone and a bobbin frame which frame drives the bobbin to be loaded.

3,570,777
WINDER AND WINDING METHOD

Emil J. Berger, Jr., Wayne, Pa., assignor to Turbo Machine Company, Lansdale, Pa.

Filed Aug. 19, 1968, Ser. No. 753,413
Int. Cl. B65h 54/32, 54/28
U.S. Cl. 242—43.1 16 Claims

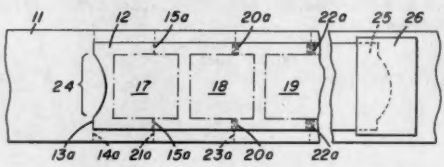
A winder and winding method is provided for forming multiple yarn feeds into multiple packages having tapered ends, each having a yarn guide having a mechanical movement which controllably varies the axial movement of the guide in relation to the diameter of the yarn accumulated in the package.



3,570,778
FILM END TREATMENT ARRANGEMENT

Clifford B. Bushnell, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Original application Apr. 26, 1965, Ser. No. 450,948, now abandoned. Divided and this application Apr. 24, 1969, Ser. No. 818,947
Int. Cl. B65h 35/04
U.S. Cl. 242—56 8 Claims



A method of forming a tightly wound roll of film comprising a backing paper strip interleaved with a length of pressure-sensitive photographic film, having a normal picture area between the lateral edges thereof, whereby the picture area is free of pressure marks. The method comprises the steps of starting to wind the backing paper strip tightly around a rotating mandrel, cutting an end of the film to have a reduced supporting configuration in the area corresponding to and longitudinally aligned with the normal picture area of the film and, while continuing the winding of the backing paper strip, maintaining tension in the backing paper strip. The cut end of the film is introduced into the nip of the backing paper being wound on the rotating mandrel, and the length of film is wound together with the remainder of the backing paper.

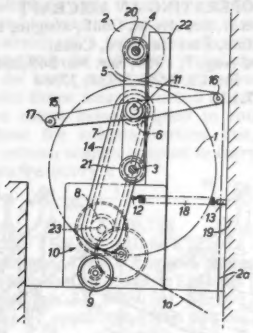
3,570,779
BOBBIN-CHANGING DEVICES

William Charles London, Deptford, London, England, assignor to Moline Machine Company Limited, London, England

Filed Dec. 4, 1968, Ser. No. 781,131
Claims priority, application Great Britain, Dec. 15, 1967, 57040/67
Int. Cl. B65h 49/32, 67/02
U.S. Cl. 242—64 7 Claims

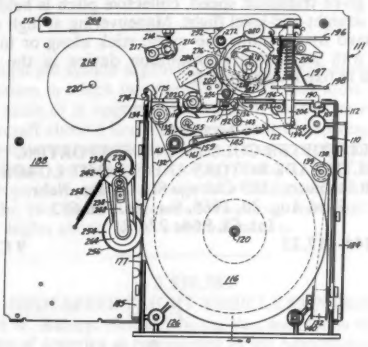
A bobbin changer has a carrier supporting two bobbins symmetrically placed relative to a pivot, and guide means

such as a fixed cam are provided so that, when the carrier is



rotated on its pivot to interchange the positions of the bobbins, one bobbin moves in a shorter path than the other.

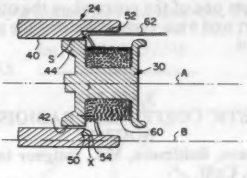
3,570,780
MAGNETIC TAPE CARTRIDGE
Sheldon Lee Pastor, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 489,534, Sept. 23, 1965, now abandoned. This application Feb. 12, 1969, Ser. No. 798,749
Int. Cl. G03b *1/04;* **G11b** *15/32*
U.S. Cl. 242—194 **8 Claims**



A cartridge enclosing a pair of tape reels independently rotatably mounted on a shaft and guide means in the container guiding the tape from one reel past an opening in one edge of the container and back across the same opening to the other reel.

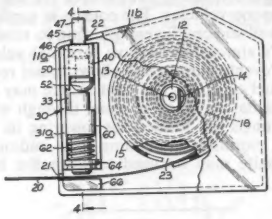
3,570,781
REEL WITH INTEGRAL LINE STOP
Paul E. Allen, Ephrata, Pa., assignor to Woodstream Corporation, Lititz, Pa.,
Filed Aug. 26, 1968, Ser. No. 755,040
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.21 **2 Claims**

There is disclosed a fishing reel of the spinning type having inter alia, and as conventional, a spool housing or cup and a spool reciprocally movable within the spool housing or cup. The spool housing, however, has a first forwardly disposed inner wall portion of a larger diameter than the adjacent second and rearwardly disposed inner wall portion thereof, and a line stop face joins such first and second wall portions. The line stop face is disposed to engage and direct expanding



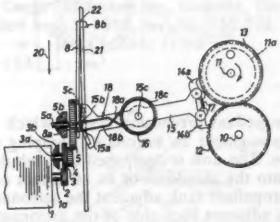
turns of line unwrapping from the spool forwardly of the face so as to prevent line and/or reel fouling.

3,570,782
TAPE MEASURES
Derek Hayes, Birminghan, England, assignor to Rabone Chesterman Limited, Birmingham, England
Filed Jan. 14, 1969, Ser. No. 790,999
Claims priority, application Great Britain, Jan. 16, 1968, 2261/68
Int. Cl. B65h *75/48*
U.S. Cl. 242—107.2 **8 Claims**



A tape measure having a measuring tape coiled within a housing provided with a braking device, the latter including a button accessible externally of the housing to actuate a tape clamping member through an intermediate catch member so that the latter alternately engages and disengages a catch point in the housing to define a tape-clamping and a tape-released position respectively of the member.

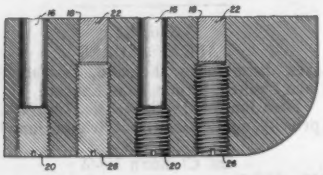
3,570,783
MOTION PICTURE CAMERA
Friedrich Winkler, Unterhaching, and Kurt Thate, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Mar. 17, 1969, Ser. No. 808,385
Claims priority, application Germany, Mar. 28, 1968, P 17 72 083.1
Int. Cl. B11b *15/32;* **G03b** *1/04*
U.S. Cl. 242—205 **14 Claims**



The takeup reel of a motion picture camera is rotated by way of the claw pulldown. The connection between the pulldown and the reel comprises a pair of meshing gears one of

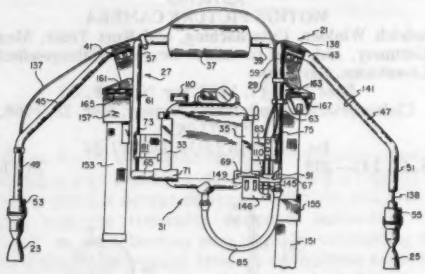
which is connected with the reel, a two-armed lever one arm of which is rocked by the pulldown by way of a torsion spring and the other arm of which carries two pawls. One pawl is disengaged from one of the gears when the other pawl rotates the other gear, and vice versa, whereby the reel rotates in a single direction.

3,570,784
LOW BALLISTIC COEFFICIENT RADIOISOTOPE HEAT SOURCE
Martin R. Scheve, Baltimore, Md., assignor to Teledyne, Inc., Los Angeles, Calif.
Filed Oct. 20, 1967, Ser. No. 676,933
Int. Cl. B64g *1/30*; G21c *3/30*
U.S. Cl. 244—1 **13 Claims**



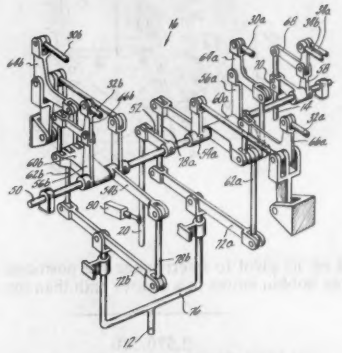
A radioisotope containing heat source for use in artificial satellites and space vehicles. The source is configured so as to have a low ballistic coefficient allowing its random reentry into the earth's atmosphere at low terminal velocities. The low velocity prevents burnup and allows intact reentry of the radioisotopic fuel capsules. The heat source may typically be configured as a flat rectangular panel through which empty cylindrical channels are formed for lowering its weight and within which capsules containing the radioisotope are disposed. Graphite may be used to form the body of the panel.

3,570,785
PERSONAL PROPULSION UNIT
Robert M. Croft, Albertville; Alfred G. Orillion, and Thomas W. Barrett, Huntsville, Ala. Administrationthe United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 24, 1969, Ser. No. 809,822
Int. Cl. B64c *39/00*
U.S. Cl. 244—4 **1 Claim**



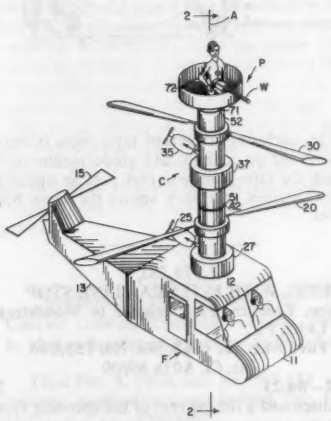
A monopropellant propulsion system which is used as an assist unit to augment an astronaut's jumping ability on the lunar surface. The unit is composed of a tubular framework which fits onto the shoulders of an astronaut and supports a disposable propellant tank adjacent the astronaut's chest and has thrusters adjacent each side of the astronaut about at the level of the hips. Propellant lines are contained within the tubular framework. Controls are provided for tilting the thrusters toward the front and back as well as for throttling the thrusters. Extensions may be added to the tubular framework to achieve different configurations, such as would be suitable for cargo handling.

3,570,786
CONTROL APPARATUS AND METHOD FOR OPERATING AN AIRCRAFT
Richard B. Lewis II, Sepulveda, Calif., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Aug. 7, 1969, Ser. No. 848,264
Int. Cl. B64c *27/34*, *27/44*
U.S. Cl. 244—17.13 **20 Claims**



A control device and method for operating an aircraft having rigid lifting rotors in which the rotor blades can carry steady offset lift vectors. The blades of the rotors are adjustable cyclically so that the thrust vector can be offset laterally and are adjustable collectively to vary the magnitude of the thrust vector. Collective-to-lateral coupling is provided which renders the lateral cyclic pitch a function of collective pitch. Above a given transition speed, collective pitch is held constant for straight-and-level flight. Maneuvering at high speed is performed by operating the cyclic stick along or in conjunction with an auxiliary propulsion device in the same manner as in fixed wing aircraft.

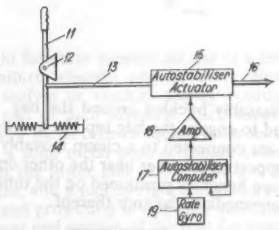
3,570,787
HELICOPTER COLUMN FOR SUPPORTING MULTIBLADE ROTORS AND SUMMIT LOADS
Bernhardt Stahmer, 1509 Chicago St., Omaha, Nebr.
Filed Aug. 30, 1968, Ser. No. 756,683
Int. Cl. B64c *27/08*
U.S. Cl. 244—17.23 **9 Claims**



This invention relates to a helicopter aircraft comprising a hollow fuselage and a stationary lofty upright column attached to the fuselage and extending loftily upwardly from

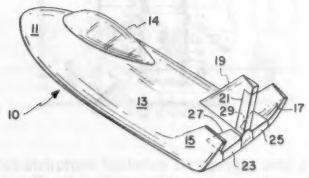
the fuselage roof along a vertical axis, the lofty column being both adapted to rotatably support at least one substantially horizontal multiblade rotor thrust means and also adapted to support a weighty load at the column summit. The lofty column is desirably of a tubular configuration having two vertically-aligned tubular segments, including a lateral access opening into the lower segment from the fuselage interior, a multiblade rotor thrust means attached to each segment with the respective rotors being adapted to rotate in opposed directions about the column vertical axis, and platform means at the column summit adapted to carry a weighty load such as warfare weaponry.

3,570,788
FLIGHT AID SYSTEMS
Joe Cox, Grantham, Lincs., England, assignor to Ferranti, Limited, Hollinwood, Lancashire, England
Filed Jan. 31, 1969, Ser. No. 795,627
Claims priority, application Great Britain, Feb. 6, 1968, 5859/68
Int. Cl. B64c *17/06*
U.S. Cl. 244—77 **2 Claims**



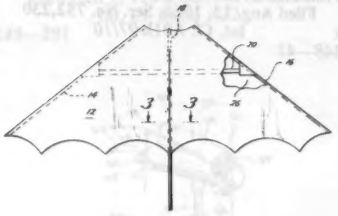
A flight aid system is provided for an aircraft having a control system in which two parallel control rods move together in the same or in opposite directions to control movement of the aircraft about a first or a second control axis respectively. The system includes, for each control rod, a closed-loop autostabilizer including a rate gyroscope. The two rate gyroscopes are mounted with their sensitive axes coplanar with the two control axes and displaced by equal and opposite angles about the second control axis.

3,570,789
HIGH-SPEED FLIGHT VEHICLE CONTROL
Robert W. Rainey, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed June 30, 1969, Ser. No. 837,830
Int. Cl. B64c *9/02*
U.S. Cl. 244—90 **3 Claims**



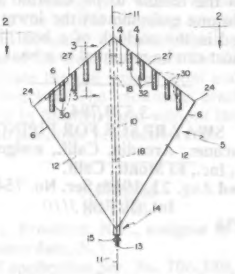
A vehicle having supersonic and hypersonic flight capabilities equipped with a pair of elevons on the aft end of the body and disposed with hinge lines swept forward relative to the aircraft centerline at an angle less than 90°.

3,570,790
METHOD OF MAKING A KITE AND KITE STRUCTURE
Julius M. Christoffel, and Lester F. Phillips, Houston, Tex., assignors to Gayla Industries Inc., Houston, Tex.
Filed Aug. 5, 1968, Ser. No. 750,326
Int. Cl. B64c *31/06*
U.S. Cl. 244—153 **6 Claims**



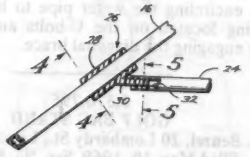
A kite structure having a body and structural members which are integrally bonded to the kite body and the method of making such kite structure.

3,570,791
BATTENED KITE CONSTRUCTION
Richard R. Jackson, 8 Trinity Road, Marblehead, Mass.
Filed May 31, 1968, Ser. No. 733,599
Int. Cl. B64c *31/06*
U.S. Cl. 244—153 **6 Claims**



The specification describes a kite or kitelike device having substantially symmetrical wing sections made of highly flexible sheet material; stiffening battens are disposed at the leading edge of the wing sections to make the wing sections rigid in the chordal direction but yet permit free flexure of the wing sections in the direction of span.

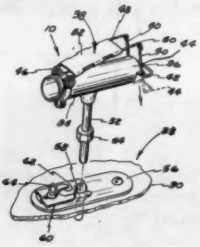
3,570,792
KITE STRUCTURE
Julius M. Christoffel, and Lester F. Phillips, Houston, Tex., assignors to Gayla Industries, Inc., Houston, Tex.
Filed Aug. 5, 1968, Ser. No. 750,274
Int. Cl. B64c *31/06*
U.S. Cl. 244—153 **5 Claims**



A collapsible kite structure having a body of sheet material, a pair of structural members secured to said body and

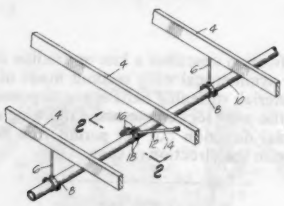
diverging with respect to each other when said body is extended to flying position, pins secured to said structural member and a cross brace adapted to engage said pins to hold said structural members in diverging position.

3,570,793
FISHING ROD HOLDER
Joseph T. Shackel, 14636 Bringard, Detroit, Mich.
Filed Aug. 13, 1968, Ser. No. 752,230
Int. Cl. A01k *97/10*
U.S. Cl. 248—42 **9 Claims**



A pair of holders are disclosed for supporting a fishing rod in a selected orientation on a boat or other supporting surface. In each embodiment, the handle of the rod is seated in a support mounted at the upper end of an upright post, and a spring-biased keeper, mounted on the support, is movable between a first position in which it prevents removal of the fishing rod handle from its seat, and a second position in which it allows the handle to be inserted into or removed from its seat. In one embodiment the lower end of the post can be mounted in the oarlock of a boat, in the other embodiment the post can be mounted in a boat gunnell.

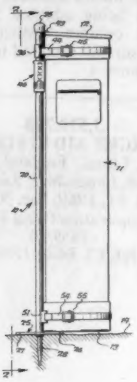
3,570,794
SWAY BRACE FOR PIPING
Joseph F. Kirschner, Arcadia, Calif., assignor to Automatic Fire Control, Inc., El Monte, Calif.
Filed Aug. 23, 1968, Ser. No. 754,804
Int. Cl. F16l *3/10*
U.S. Cl. 248—74 **1 Claim**



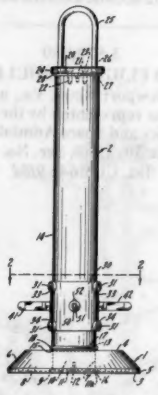
A sway brace for fluid lines in building structures such as water supply lines in sprinkler systems, the brace including a brace element having an end adapted to be anchored to a joist or other portion of a building and having its opposite end provided with a U-bolt clamp assembly, the sway brace being disposed at an angle to the horizontal of 0° to 45° and the U-bolt encircling the water pipe to be braced, and the clamps being located on the U-bolts and having portions clampingly engaging the diagonal brace.

3,570,795
GOLF BAG STAND
Howard A. Benzel, 20 Lombardy St., Lancaster, N.Y.
Filed Mar. 10, 1969, Ser. No. 805,544
Int. Cl. A63b *55/04*
U.S. Cl. 248—96 **5 Claims**

A stand for holding a golf bag in upright position on a golf course and adapted for convenient storage in small spaces when not in use. An elongated tubular supporting member has secured in one end thereof a mounting member to which are releasably attached a spike, a plate functioning as both a bottom support for the bag and a foot step, and a member which supports one side of the bag. A strap connected to the member is releasably buckled around the bag. A C-shaped hanger adapted to engage the bag top rim and a second bag-holding strap are connected to a clamp movably fastened on the tubular supporting member near the other end thereof. A tubular grip-type handle is positioned on the tubular supporting member intermediate the ends thereof.

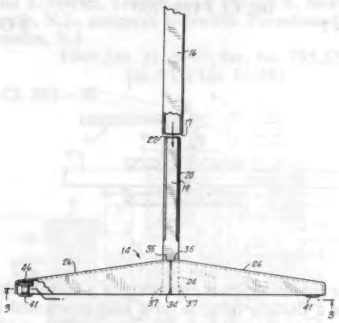


3,570,796
INDICATOR-MEASURING DEVICE
Doc R. Capps, South Bend, Ind., assignor to South Bend Tool & Die Co., Inc., South Bend, Ind.
Continuation-in-part of application Ser. No. 603,697, Nov. 14, 1966. This application Jan. 23, 1969, Ser. No. 793,366
Int. Cl. G01b *3/22*
U.S. Cl. 248—125 **5 Claims**



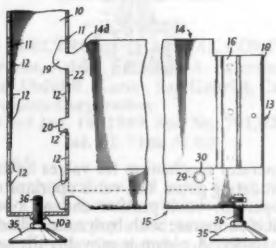
A gauge stand having predetermined paralleling and angularly related surfaces of controlled dimensions with an indicator-carrying sleeve manually slidable and rotatable but frictionally held in the position placed on a central post, and fluid pressure means facilitating manual movement of the device of the invention.

3,570,797
FURNITURE BASE
Forest G. Stark, Jamestown, and Burdette Bruce Hook, Asheville, N.Y., assignors to Art Metal-Knoll Coporation, Jamestown, N.Y.
Filed Apr. 16, 1969, Ser. No. 816,600
Int. Cl. F16m *11/20*
U.S. Cl. 248—188.7 1 Claim



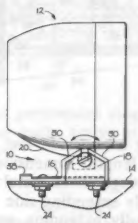
An upright furniture support for use in a freestanding article of furniture wherein one or more elements such as horizontal shelves or vertical display boards are mounted between a pair of such supports. Each support includes an upright hollow metal tube of square cross section and a base comprising a solid metal post of square cross section press fitted within the lower end of the tube and having beveled vertical edges, and a pair of rigid elongated members fixedly secured to and projecting in opposite directions horizontally from the lower end portion of the post for engaging the floor. The two elongated members may be downwardly opening channel members which are welded to the lower end of the post and have sidewall portions extending toward each other over the side surfaces of the post.

3,570,798
SUPPORTING STRUCTURES FOR SHELVES, RAILS AND LIKE MEMBERS
Dennis Edward Charles Squibb, Watford, England, assignor to Savage and Parsons Limited, Watford, Hertfordshire, England
Filed Oct. 28, 1968, Ser. No. 771,023
Claims priority, application Great Britain, Oct. 27, 1967, 49042/67
Int. Cl. A47f *5/08*
U.S. Cl. 248—223 7 Claims



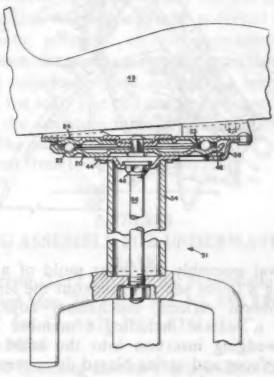
A support structure includes an upright and a bracket extending laterally therefrom. The upright has slots therein. The bracket includes first and second members. The first member has hooks which engage in the apertures and stops which limit rotational movement of the member toward the second member. The second member has hooks which engage in the apertures and stops which limit rotational movement of the member toward the first member. Both members have transverse holes therethrough which become aligned for receiving a pin when the members are strained toward each other.

3,570,799
MOUNT FOR INSTRUMENTS AND THE LIKE
Edwin L. Schwartz, Los Angeles, Calif., assignor to Rite Autotronics Corporation, Los Angeles, Calif.
Filed Oct. 7, 1969, Ser. No. 864,310
Int. Cl. B60q *1/32*
U.S. Cl. 248—291 10 Claims



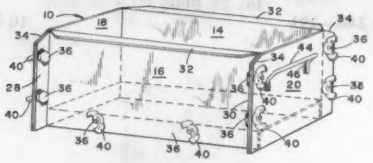
A mount for attaching an instrument or other article to a mounting surface. The mount includes a mounting bracket having a base to be attached to the mounting surface and a pair of parallel sidewalls rising from the base for straddling a coupling tongue on the article to be supported. The sidewalls are formed with outwardly directed flanges along their edges and with slots which open endwise through the sidewall edges and flanges. The article is attached to the mounting bracket by means of a coupling pin which extends through the bracket slots and the article coupling tongue. This coupling pin has enlarged shoulder elements which project laterally beyond the sides of the slots and under the sidewall flanges to effectively captivate the pin against axial and lateral separation from the bracket. The mounting bracket is uniquely shaped to be cast in finished form without the aid of removable cores, thus to minimize production cost.

3,570,800
SWIVEL
Izchak Cycowicz, Brooklyn, N.Y., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Continuation of application Ser. No. 706,389, Feb. 19, 1968, now abandoned. This application Mar. 20, 1970, Ser. No. 19,560
Int. Cl. F16m *11/00*
U.S. Cl. 248—415 2 Claims



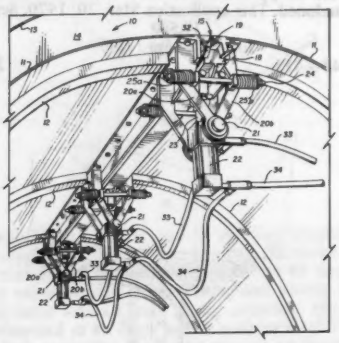
A low profile swivel device for chairs or the like.

3,570,801
MOLD FOR CONCRETE TEST BEAM
Earl F. Moritz, Dallastown, and George F. Wagman, Jr., York, Pa., assignors to Wagman Metal Products, Inc., Dallastown, Pa.
Filed Apr. 23, 1969, Ser. No. 818,663
Int. Cl. B41b 11/60
U.S. Cl. 249—166 4 Claims



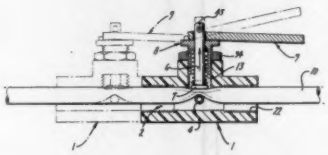
A mold for casting a concrete test beam having precise cross-sectional and length dimensions, the mold being formed from heavy gauge sheet metal and having a bottom panel with downwardly extending side flanges, a pair of side panels having outwardly extending end flanges and a top flange along the upper edge of the side panel, and end panels having a height, in use, equal to that of the side panels, and a minimum of at least two bolts fixed to each of the end flanges of the side panels and the side flanges of the bottom panel for projection through complementary holes in the abutting portions of the other panels which engage the same, whereby wing nuts tightly and effectively clamp the side panels to the bottom panel and connect the end panels to the side panels in a substantially watertight manner, the end panels also having handles projecting outwardly therefrom and the upper flanges on the side panels providing guide surfaces for a striking tool to level the concrete when poured into the mold.

3,570,802
CONCRETE-MOLDING APPARATUS HAVING AN INNER MOLD MEMBER WITH VARIABLE DIMENSION PERIPHERY
Ira B. Miller, Orange, Calif., assignor to Hydro Conduit Corporation, Orange, Calif.
Filed Oct. 10, 1968, Ser. No. 766,396
Int. Cl. B28b 7/30
U.S. Cl. 249—179 12 Claims



Withdrawal assembly for inner mold of a concrete tube mold having a linear seam throughout the lengthwise extent of a peripheral surface, mechanism adjacent the seam throughout its extent including a member having tapered sides for wedging insertion into the seam to spread the abutting surfaces and spring-biased drive means interiorly of the mold carrying the insert member and arranged to force said member into the seam in a spreading and sealing action for closing the seam during molding and initiating a withdrawal movement of the insert member with combined spring actuation thereby reducing the dimension of the peripheral surface by closing the seam to provide clearance with a formed tube in the mold.

3,570,803
CORROSIVE PROOF PINCH TUBE VALVE
Ray W. Cokeley, 3000 Broadway, Oakland, Calif., and David Y. Milburn, 14 Francisco Court, Orinda, Calif.
Filed Dec. 16, 1968, Ser. No. 783,845
Int. Cl. F16k 7/06
U.S. Cl. 251—7 2 Claims



A valve for corrosive fluids consisting of a housing through which passes a flexible tube, a valve seat positioned in the housing passage having a convex striking surface, a plunger mounted on the housing having a plunger head movable toward and away from the valve seat, adjustable means adjusting the closure distance between the plunger head and the seat and manually engageable means connected to the plunger for operating the closure of the tube.

3,570,804
HYDRAULIC VALVE OPERATOR HAVING MANUAL OVERRIDE MECHANISM
Norman A. Nelson, Houston, and Jerry B. Tomlin, Houston, Tex., assignors to ACF Industries, Incorporated, New York, N.Y.
Filed Apr. 18, 1969, Ser. No. 817,518
Int. Cl. F16k 31/143
U.S. Cl. 251—25 2 Claims

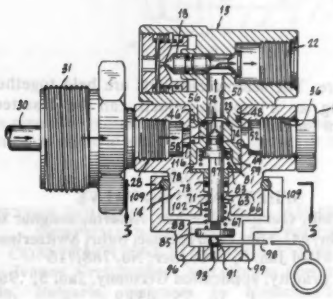
A valve operator mechanism for valves having linearly actuated reciprocating gates. The valve operator mechanism includes an operator base portion and an operator closure member which cooperate with hydraulic cylinder to define a hydraulic chamber. A piston is movably disposed within the hydraulic chamber and is connected in unitary assembly with a reciprocating gate by a valve stem extending through the operator base and into the valve chamber. A hydraulic fluid supply is communicated into the operator chamber on one side of the piston for controllable actuation of said piston in one direction. A compression spring member is operable to return the piston to an initial position upon dissipation of the hydraulic fluid pressure above the piston. The valve operator mechanism is provided with mechanically or hydraulically actuatable override means controllable externally of the

valve operator and being capable of overriding the spring means and biasing the gate member to any desired position thereof. Upon retraction of the override mechanism, the spring means will bias the piston, stem and gate assembly to another predetermined position.

3,570,805
VALVE HAVING QUICK RELEASE FLUID PRESSURE VALVE CLOSING MEANS

Harold J. Moran, Trenton, and Vincent F. Siravo, New Monmouth, N.J., assignors to Switlik Parachute Company Inc., Trenton, N.J.

Filed Jan. 31, 1969, Ser. No. 795,532
Int. Cl. F16k *31/383*
U.S. Cl. 251—38 **4 Claims**



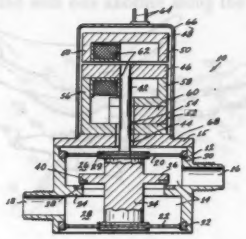
A high-pressure valve structure to control admission of fluid from a high-pressure reservoir to an inflatable article, the said valve structure having a valve element maintained in its seated closed position to prevent leakage and fluid admission to the article by the high fluid pressure existing in the reservoir. Readily accessible manually operable valve release means are provided suddenly to release fluid seating pressure acting on the valve element and substantially instantaneously to permit admission of fluid from the reservoir to the article. The manually operable valve release mean is, preferably, operated by a pull on a lanyard, the latter serving to open the valve when pulled in any direction radially and axially, or either, of the axis of the valve structure. Actuation of the manually operable valve release means does not alter the external dimensions of the valve structure, which is an important feature of the invention as space is at a premium when the valve structure is to be installed in aircraft or, possibly, in space environment vehicles for inflation of emergency equipment such as, for example, a life raft or an escape chute.

3,570,806
BALANCED ELECTROMECHANICAL CONTROL VALVE

Oded E. Sturman, Arleta; Salvatore A. Sciortino, North Hollywood, and Abdul R. Kassir, San Gabriel, Calif., assignors to Bell Aerospace Corporation

Filed Jan. 14, 1969, Ser. No. 791,027
Int. Cl. F16k *31/08*
U.S. Cl. 251—65 **4 Claims**

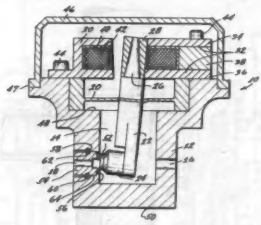
An electromechanical control valve in which a poppet is biased against a seat therefor within an enclosing chamber having inlet and outlet ports and which is balanced against fluid pressure forces. Oppositely disposed walls of the chamber are deformable and a force-transmitting rod carries the poppet between such deformable walls whereby displacement of the poppet causes deformation of the walls to urge the poppet in the opposite direction. A system geometry is utilized which takes into account the effective surfaces of the poppet and the configurations of the walls when deformed. In particular embodiments, bias on the poppet is obtained by the application of the magnetic potential of a permanent magnet operatively associated with an armature extension of the poppet outside the chamber. The permanent magnet biases the poppet to its seat and a coil is disposed on the armature to oppose the permanent magnet potential whereby the deformed chamber walls, acting as springs, urge the poppet to an open position.



3,570,807
ELECTROMECHANICAL CONTROL VALVE

Oded E. Sturman, Arleta; Salvatore A. Sciortino, North Hollywood, and Abdul R. Kassir, San Gabriel, Calif., assignors to Bell Aerospace Corporation

Filed Jan. 14, 1969, Ser. No. 791,026
Int. Cl. F16k *31/08, 31/10*
U.S. Cl. 251—65 **4 Claims**



An electromechanical control valve in which a poppet is magnetically biased against a valve seat and is mechanically unseated upon decrease of the magnetic moment. A suspension plate carries the poppet on one side thereof and an armature on the other side to constitute an integrated assembly. A permanent magnet attracts the armature to thereby bias the poppet against the seat and deform the suspension plate. A coil is disposed on the armature and, when energized, develops a magnetic potential in opposition to the magnetic potential of the permanent magnet to thereby decrease the permanent magnet attraction whereby the deformed suspension plate, acting as a spring, urges the poppet out of the seat. The coil can be disposed so as to positively attract the armature through the null point to an opposite poll. The suspension plate also serves to isolate the magnetic circuit from the poppet-seat area.

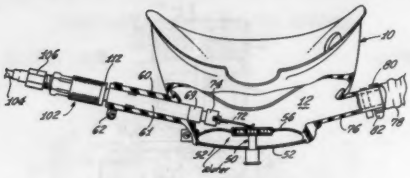
3,570,808
COUPLING ASSEMBLY FOR UNDERWATER FACE MASK

Jack Louis Wrenn, 2232 Via Corona, Montebello, Calif.

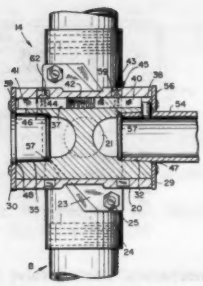
Filed Mar. 20, 1969, Ser. No. 808,886
Int. Cl. A62b *7/04;* **F16l** *37/28*
U.S. Cl. 251—149.6 **2 Claims**

An improved coupling assembly is provided for releasably attaching an air hose, or the like, to a second stage regulator of the type used in conjunction with the face mask or mouthpiece of underwater diving equipment. The coupling is

readily detachable, and a double valve mechanism is provided, so that when the air hose is decoupled from the regulator underwater, valves in both the regulator air inlet and in the end of the air hose are immediately biased to a closed condition.



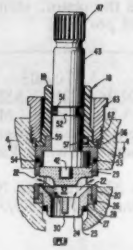
3,570,809
SILENT HOSE COUPLING
Hans Stuy, Canastota, N.Y., assignor to Clarkson Industries, Inc., Syracuse, N.Y.
Filed June 5, 1969, Ser. No. 830,772
Int. Cl. F16l *37/28*
U.S. Cl. 251—149.9 **7 Claims**



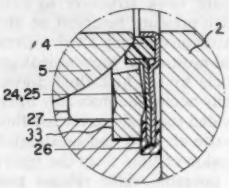
The disclosure is directed to a coupling which eliminates air noise when connecting and disconnecting a detachable cleaning hose to a built-in vacuum-cleaning system for buildings having outlets in separate rooms in which a nipple at the end of the hose is moved into sealing engagement with a valve plug in an outlet and then turned to connect the hose to an exhauster through built-in piping, and an interlocking arrangement to prevent rotation of the valve plug except when the hose nipple is in sealing engagement therewith.

3,570,810
FAUCET VALVE
Raymond P. Kawolics, Marysville, Ohio, assignor to Wallace-Murray Corporation, Pittsburgh, Pa.
Filed Jan. 31, 1969, Ser. No. 795,628
Int. Cl. F16k *25/02*
U.S. Cl. 251—172 **3 Claims**

A faucet valve of the nonrise-type wherein the valve seat and the valve closure member are made of a wear- and corrosion-resistant material, such as a high alumina ceramic. The mating faces of the valve seat and the valve closure member are highly polished so that when the faucet valve is in the closed position, the valve seat and the valve closure member are held together in sealing relationship by the inlet liquid pressure. The sealing elements are held together in a valve housing as a module which can be inserted and removed from the faucet body as a unit.



3,570,811
SPHERICAL PLUG VALVE
Julius Kruschik, Gumpoldskirchen, Austria, assignor to Istag A. - G. Suhr/AG, Hint., Dorfstrasse, Suhr, Switzerland
Filed Jan. 3, 1969, Ser. No. 788,713
Claims priority, application Germany, Jan. 5, 1968, P 16 75 433.9
Int. Cl. F16k *5/20*
U.S. Cl. 251—174 **4 Claims**

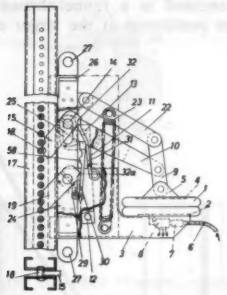


A spherical plug valve comprises a three-part casing, the middle part containing the spherical plug and an annular holding disc for sealing rings on either side of the plug. The holding discs are mounted in the planes of separation of the valve casing. Each annular holding disc carries at its inner periphery a sealing ring coacting with the spherical valve plug and at its outer periphery a sealing ring providing the seal between the two adjacent casing parts. The annular holding disc may be formed by two sheet metal discs which are axially flanged at their inner periphery to form two radially spaced axially extending flanges engaging between themselves the sealing ring coacting with the spherical valve plug. A supporting ring mounted in the middle part of the casing between the plug and the holding disc supports the holding disc against pressure when the valve is in closed position and allows a limited deformation of the holding disc.

3,570,812
LIFTING DEVICE OPERATED BY BELLOWS
Walter Finkbeiner, 729 Wittlenswellerstr, Freudenstadt, Germany
Filed Oct. 3, 1968, Ser. No. 764,838
Int. Cl. B66f *3/24, 1/04*
U.S. Cl. 254—93 **10 Claims**

A reversible lifting device has an inflatable and deflatable bellows as a drive and catches which engage in recesses of a

guide pole. A rigid frame which can be connected to the load acts as one abutment for the bellows. A double-ended lever



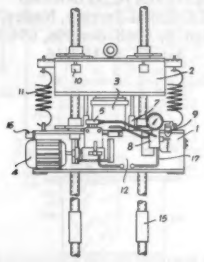
arm is pivotably mounted on the frame, has the other bellows abutment at one end and one of the catches at its other end.

3,570,813

LIFTING EQUIPMENT FOR THE ASSEMBLAGE IN VERTICAL DIRECTION OF BUILDING CONSTRUCTIONS MACHINES AND PLANTS

Hristo Ivanov Gretchenliev, and Atanas Gueorguiev Radev, Sofia, Bulgaria, assignors to Nautchno-Izsledovatelski Stroitelen Institut, Sofia, Bulgaria

Filed Sept. 12, 1968, Ser. No. 759,424
Claims priority, application Bulgaria, Sept. 20, 1967, I-1323
Int. Cl. B66f *1/00*; E02d *21/00*
U.S. Cl. 254—106 **6 Claims**



A system for lifting objects, e.g. parts of a building to be erected, wherein a plurality of lifting devices are spaced along the object and are connected thereto by threaded rods. The device comprises an upper and a lower member interconnected by a hydraulic jack and nuts on each of the members rotatable by mechanical means. The synchronization of the devices is carried out by a relay arrangement such that each device is associated with a respective switch having a plurality of contacts and coupled with the means for advancing one of the members with respect to the other. Movement is done in stages with each contact signaling the completion of its associated stage for all of the devices before any of them is energized to begin the second movement stage.

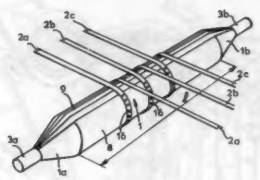
3,570,814

TRACTION CYLINDER

Paul J. Zuppiger, Athenaz, Switzerland, assignor to MacGregor-Comarain, Paris, France

Filed Feb. 24, 1969, Ser. No. 801,669
Int. Cl. B66d *1/30*
U.S. Cl. 254—150 **9 Claims**

The fluid-actuated traction cylinder according to the invention is of particular utility notably in the interior of deformable collapsible chambers. It comprises a substantially cylindrical tubular supple deformable enclosure closed at both ends and the lateral surface of which comprises elements articulated with one another along the generatrices of



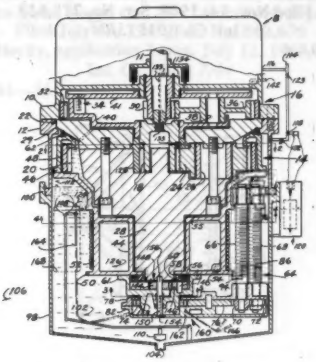
the surface of said cylindrical enclosure, supple band means, mounted on said cylindrical surface and having its ends attached to said members, and means for inflating or deflating said enclosure by means of a pressurized fluid.

3,570,815

APPARATUS FOR SUPPORT AND DRIVE OF ROTARY APPLIANCES

Arthur John Nelson, San Francisco, Calif. (3304 Shasta Drive, San Mateo, Calif. 94403)

Filed Aug. 18, 1969, Ser. No. 862,578
Int. Cl. B66d *3/22*
U.S. Cl. 254—150 **15 Claims**



A power-consuming rotary appliance is supported and driven by elements involved in the speed changes of the power unit. The apparatus is applicable for either horizontal or vertical axis of rotation of the appliance by slight change to sealing details and with further modification is adaptable to immersion in a body of water. The speed changer comprises at least one planetary gear train and particular design assures proper conditioning and circulation of lube oil in contention with environmental conditions. The use of this apparatus to serve as a winch is stressed as one application.

3,570,816

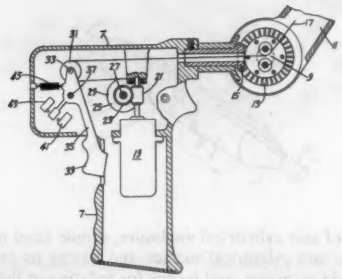
MANIPULATOR HANDLE

Jean Germond, Paris; Jean-P. Guilbaud, Jouars-Pontchartrain, and Jean Vertut, Paris, France, assignors to Central Research Laboratories, Inc., Red Wing, Minn.

Filed May 19, 1969, Ser. No. 825,494
Claims priority, application France, May 22, 1968, PV152,814
Int. Cl. B66d *1/46, 1/50, 1/56*
U.S. Cl. 254—173 **7 Claims**

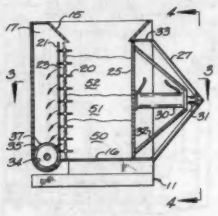
A motorized handle for controlling the opening and closing of the grab or tong of a master-slave remote control manipulator characterized by increased ease of operation and

mechanical boost of gripping force. A motor driven winch controlled by a pair of switches actuated by a lever or trigger manipulated by the operator from his normal handle gripping



position provides auxiliary force supplementing that applied by the operator. Means are provided to lock the grab in closed position with a safety feature to prevent application of excessive force which might break the force transmitting cable.

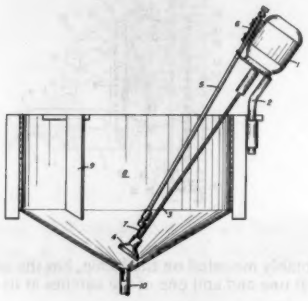
3,570,817
BLENDING MACHINE
Patrick H. Claussen, Columbia, Mo., assignor to Fipps, Inc., Wellsville, Mo.
Filed Nov. 14, 1968, Ser. No. 775,633
Int. Cl. B01f *15/04*
U.S. Cl. 259—4 **11 Claims**



The blending machine includes a container which is adapted to hold successive layers of granular materials. The front wall of the container includes a plurality of closed louvers which, when open, form a plurality of vertically related dispensing apertures. The rear wall of the container is a movable plate, which when urged against the material in the container, forces the material through the dispensing apertures in proportion to the thickness of each layer. The granular material from each layer is blended by free fall and collected into a trough disposed below the apertures, the trough housing a screw conveyor which further blends and transports the granular material to a point of discharge.

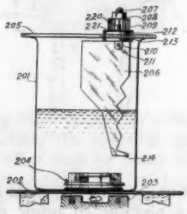
3,570,818
ASPIRATING AGITATOR FOR DISPERSING NONAQUEOUS SOLUTION IN AQUEOUS GELATIN SOLUTIONS
Benjamin A. Johnson, and Donald M. Forster, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 355,703, Mar. 30, 1964, Pat. No. 3,425,835. this application Nov. 29, 1968, Ser. No. 779,719
Int. Cl. B01f *7/06*
U.S. Cl. 259—22 **13 Claims**

This invention relates to a mixing apparatus for dispersing small amounts of liquids in bulk liquids with substantial elimination of coagulation caused by low dispersion rates of portions of the added liquid. In one aspect this invention relates to a mixing apparatus which comprises a rotatable shaft having at one end a propeller agitator composed of blades, said blades encased in a funnel-shaped tubular confining means, means positioned at the larger end of said funnel-



shaped confining means to form an annular opening, means for introducing into the interior of said confining means a liquid in bulk amounts and means for introducing into the interior of said confining means, at a point at which the liquid in bulk amount enters, a second liquid in an amount comparatively small relative to the liquid in bulk amount.

3,570,819
MAGNETIC STIRRERS
Arther Rosinger, 32 Colonial Terrace, Nutley, N.J.
Filed Jan. 8, 1968, Ser. No. 696,428
Int. Cl. B01f *7/16*
U.S. Cl. 259—108 **45 Claims**

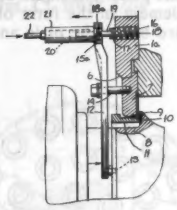


This invention relates to improvements in magnetic stirrers, wherein means such as, apparatus to change the relative position of the magnetic driving means and the vessel, a rotor having a substantially circular portion in its plane of rotation and adjustable baffle elements, are provided singly or in combination to enable the stirring characteristics of the stirrer to be adjustable over a wide range. Means are further provided for indexing the settings of the above variables so that any particular stirring pattern may be easily and accurately duplicated.

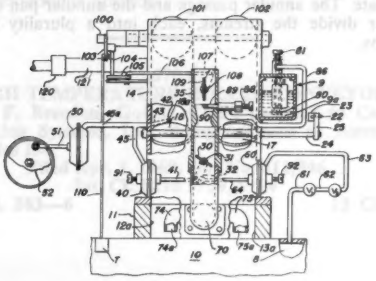
3,570,820
BANBURY-TYPE MIXER DUST STOP
Douglas W. Macleod, Oxford, Conn., assignor to USM Corporation, Boston, Mass.
Filed Jan. 9, 1969, Ser. No. 790,021
Int. Cl. B01f *7/02*
U.S. Cl. 259—109 **1 Claim**

A Banbury-type mixer dust stop having the usual mechanical spring applying force to the dust stop yoke, has cylinder

and piston reciprocative elements with one element connected to the yoke and the other element connected to the spring.



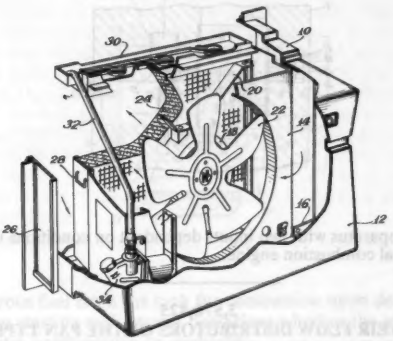
3,570,821
CARBURETOR
Brooks Walker, 1280 Columbus Ave., San Francisco, Calif.
Filed Oct. 30, 1967, Ser. No. 678,967
Int. Cl. F02m *3/04*
U.S. Cl. 261—23 **4 Claims**



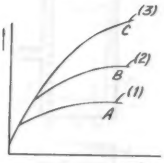
A multibarrel carburetor for an internal combustion engine having an auxiliary carburetor to provide fuel and air to idle, to the intake manifold, when the main throttles are closed at engine-idling speed. The auxiliary carburetor is provided with a throttle valve under the control of a pair of motors and has outlets for conducting idling fuel into a pair of throats of the carburetor. One of the motors is operated by manifold suction, when one of the valves of the carburetor is opened, to open the valve of the auxiliary carburetor. The other motor is operated when the valves of the carburetor are closed and the speed of the engine is above a preselected amount, to close the throttle of the auxiliary carburetor.

3,570,822
HUMIDIFIER
Clifford D. Peterson, and Donald A. Drew, Marshalltown, Iowa, assignors to Lennox Industries, Inc.
Filed Feb. 1, 1968, Ser. No. 702,322
Int. Cl. B01f *3/04;* **F24f** *3/14*
U.S. Cl. 261—29 **4 Claims**

In a humidifier with a motor-powered fan driving an airstream through a saturated water pad to humidify the air, the improvement of a water distribution pan for providing a uniform, metered flow of water to the water pad. The water distribution pan includes a number of apertures in the bottom with a channel leading from each aperture to a reservoir at one end of the pan. The reservoir is defined by the sidewalls of the pan and a dam in the pan between the sidewalls. Water spills over the dam, flows through the channels and drains out through the apertures. Ridges are provided around the apertures on both sides of the pan bottom to insure uniform distribution of the water.



3,570,823
CARBURETOR WITH FLUID AMPLIFYING ELEMENTS
Toshinori Arikawa, and Shigetaka Takada, Aichi, Japan, assignors to Aisan Kogyo Co., Ltd., Aichi Pref, Japan
Filed July 10, 1969, Ser. No. 840,670
Claims priority, application Japan, July 12, 1968, 43/49419
Int. Cl. F02m *7/04*
U.S. Cl. 261—36 **4 Claims**

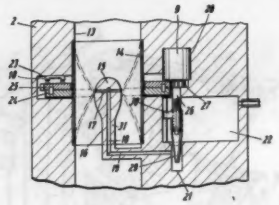


A carburetor employing three pure fluid amplifiers. Fuel from a supply source is applied to the power inputs of a first and a second amplifier, with a power outlet of the second amplifier being connected to the power inlet of the third amplifier. One power outlet of each amplifier terminates at an opening in a cylinder wall upstream of a throttle valve for supplying fuel to the cylinder. One control input of each amplifier terminates at an opening in the cylinder wall for sensing the pressure therein and controlling the amplifiers to supply fuel at a rate dependent upon the pressure sensed. The arrangement is such that one, two or all three amplifiers may supply fuel to the cylinder.

3,570,824
ELECTRONICALLY CONTROLLED CARBURETOR
Siegfried Strohm, and Erwin Pfisterer, Stuttgart-Stammheim, Germany, assignors to Firma Dr. Ing.h.c.F. Porsche K.G., Stuttgart-Zuffenhausen, Germany
Filed June 25, 1969, Ser. No. 836,520
Claims priority, application Germany, July 19, 1968, P 17 51 733.8
Int. Cl. F02m *7/04*
U.S. Cl. 261—44 **12 Claims**

A control installation for the suction line of an internal combustion engine in which the elastic line section of the

suction line is adapted to be adjusted by means of a shutter, actuated by an electric motor which is controlled from a control apparatus with two inputs dependent on conditions in the internal combustion engine.



3,570,825

WEIR FLOW DISTRIBUTORS OF THE PAN TYPE

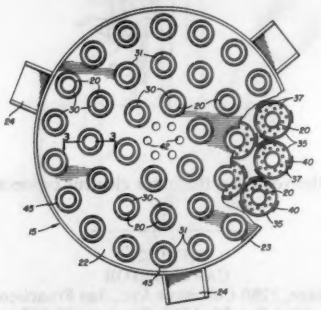
John S. Eckert, Silver Lake, Ohio, assignor to Norton Company

Continuation of application Ser. No. 592,246, Oct. 17, 1966, now abandoned , which is a continuation-in-part of application Ser. No. 524,992, Dec. 20, 1965, now abandoned. This application June 10, 1968, Ser. No. 742,950

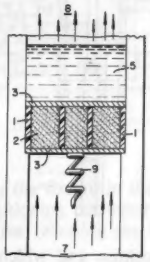
Int. Cl. B01f *3/04, 5/18, 15/02*

U.S. Cl. 261—96 **4 Claims**

A distributor plate having a plurality of liquid passages therethrough, characterized by perforate liquid diffuser positioned beneath the plate and in correspondence with the passages, to subdivide liquid introduced into the passages, into a plurality of substreams. A plurality of openings in the plate and a cylindrical gas riser of smaller diameter than the openings are positioned in each opening. The gas risers coact with the openings as a core to define a plurality of annular passages through the plate. The liquid diffuser consists of discrete, perforate element in the form of a shallow, annular, open pan positioned below the plate and in correspondence with each of the plurality of passages. The pan has an inner periphery formed integral with the cylindrical gas riser, and an outer periphery of greater diameter than the outside diameter of its corresponding annular passage. Brackets secure a portion of the outer periphery of the annular pan to the plate. The annular passage and the annular pan coact to further divide the streams, each into a plurality of substreams.

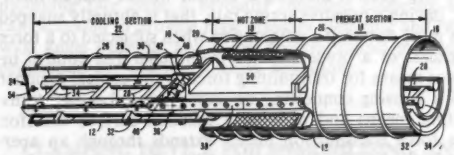


3,570,826
GAS-LIQUID-SOLID CONTACT DEVICE
Gustav Bergson, Apt. 319 Benson Apartments, Jenkintown, Pa. 19046
Filed July 5, 1966, Ser. No. 562,837
Int. Cl. B01f 3/04
U.S. Cl. 261—122 6 Claims



Gas-liquid-solid contact device has an enclosure defined by top and bottom walls of porous material, side walls of a non-wettable material and discrete solid particles contained therein. The space between the discrete particles is filled with a liquid. Gas passed through the device thereby contacts the liquid-solid medium along maximum contact surface.

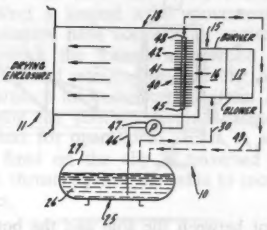
3,570,827
HIGH TEMPERATURE ROLLER CONVEYOR
Daniel F. Breedon, Goleta, Calif., assignor to Central Marking Systems, Inc., doing business as Astro Industries Inc.
Filed Apr. 1, 1969, Ser. No. 811,946
Int. Cl. F27b 9/14, 9/24
U.S. Cl. 263—6 13 Claims



A roller conveyor system particularly suited for providing a continuous process high temperature furnace has a series of cylindrical rollers journaled parallel to one another in a supporting frame for free rotation. Each load of material to be heated is supported with its under surface in direct contact with the upper surfaces of the roller members, while the bottom roller surfaces are in direct contact with the surface of a horizontal track assembly so that the underlying rollers roll over the track surface to move the load longitudinally over the upper roller surfaces.

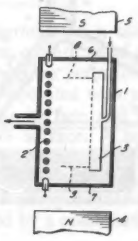
3,570,828
PROPANE VAPORIZER
James A. Cowan, Marengo, Ill., assignor to Chicago Eastern Corporation, Marengo, Ill.
Filed Apr. 21, 1969, Ser. No. 817,656
Int. Cl. F23l 9/04
U.S. Cl. 263—19 4 Claims

A hot air drying system wherein a vaporizing heat-exchanger in a hot air duct or plenum chamber of the system heats and vaporizes liquid fuel from a liquid fuel supply in a storage tank and returns heated, vapor enriched liquid to the tank. A burner in the system draws



vaporous fuel from the tank for combustion upon demand during starting and normal operation; whether the system operates continuously or cyclically.

3,570,829
HIGH STRENGTH METAL FILAMENTS AND THE PROCESS AND APPARATUS FOR FORMING THE SAME
Hermann J. Schladitz, 12–14 Ruffini Strasse, Munich, Germany
Original application Nov. 10, 1965, Ser. No. 507,121, now Patent No. 3,441,408, dated Apr. 29, 1969. Divided and this application Aug. 26, 1968, Ser. No. 774,553
Int. Cl. C21b 15/04
U.S. Cl. 266—1 4 Claims

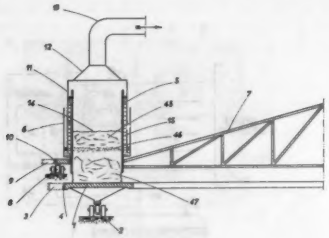


An apparatus for forming from the gas phase of a carbonyl a metal filament of hair-like cross-section. A chamber including a discharge for carbonyl vapor and a heating surface spaced from the discharge providing a reaction zone in which exists a temperature gradient through which atoms of the decomposed carbonyl travel. The apparatus further including means for creating a magnetic field within the chamber for stabilizing the crystallite chain-like aggregate as it forms.

3,570,830
FURNACE FOR THE CONTINUOUS TREATMENT OF PULVERIZED OR GRANULAR MATERIALS
Michel Beaurain, Paris, France, assignor to Sestig, Courbovoie, France
Filed June 3, 1969, Ser. No. 830,061
Claims priority, application France, June 6, 1968, 154,035
Int. Cl. F27b 21/00
U.S. Cl. 266—20 3 Claims

An annular rotary furnace has spaced interior and exterior cylindrical walls and an annular rotary sole beneath the walls. The walls and sole are rotated synchronously. A stationary cap is mounted above the walls with a gas

tight seal therebetween. Materials to be treated are introduced through the cap into the funace and are removed after treatment between the sole and the bottoms of the walls.

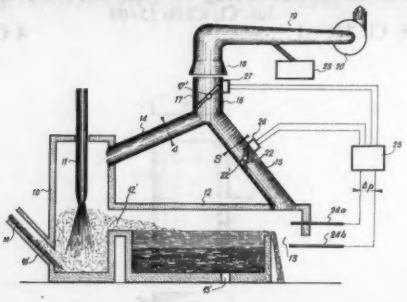


3,570,831

PROCESS AND ARRANGEMENT FOR EVACUATION OF GAS DEVELOPED DURING A CONTINUOUS METAL REFINING OPERATION

Jean Rouanet, Metz, France, assignor to Institut de Recherches de la Siderurgie Francaise, St. Germain-en-Laye, Yvelines, France

Filed Sept. 6, 1968, Ser. No. 757,954
Claims priority, application France, Apr. 18, 1967, 121,349; May 3, 1968, 150,385
Int. Cl. C21c 5/38
U.S. Cl. 266—34 7 Claims



A process for discharging gas developed during a continuous metal refining operation in a refining apparatus including a first or reaction vessel and a last vessel communicating with the first vessel and provided with a slag discharge opening communicating with the outer atmosphere, in which the gas is exhausted through a pair of conduits respectively communicating with said first and said last vessel and in which the amount of gas passing through the pair of conduits is regulated in such a manner that escape of gas through the slag discharge opening is positively prevented, and an arrangement for carrying out the process.

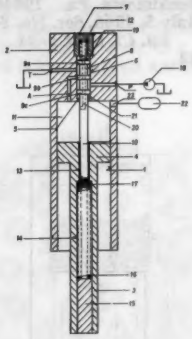
3,570,832

HYDRO-PNEUMATIC SPRING CYLINDER FOR VEHICLES

Johannes Orthell, 10 Allee, 4151 Anrath, Germany

Filed Oct. 8, 1968, Ser. No. 765,862
Int. Cl. B60g 13/08
U.S. Cl. 267—64 11 Claims

A hydro-pneumatic spring cylinder containing a level regulating device which maintains the height of the car above the wheels constant by a slide valve which controls the pressure fluid contained therein in which the slide valve is a 3/3 way slide valve which connects a piston chamber with a pressure source in one regulating position and a piston chamber with a discharge line in another regulating position and which blocks this position in a neutral position.

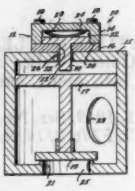


3,570,833

STEP CONTROL

Oded E. Sturman, Arleta, Salvatore A. Sciortino, North Hollywood, and Abdul R. Kassir, San Gabriel, Calif., assignors to Bell Aerospace Corporation

Filed Jan. 15, 1969, Ser. No. 800,794
Int. Cl. F16f 1/32
U.S. Cl. 267—161 8 Claims



A step control utilizing a conical washer-shaped member, having a negative spring rate, that is abruptly snapped to a more flattened configuration when subjected to a force in excess of a predetermined magnitude. The control includes means for transmitting force to the conical member and a housing connecting the conical member and transmitting means and defining a reaction surface therefor. The force transmission means extends through an aperture in the housing for reaction with a force-supplying surface. In other embodiments, a plurality of such step controls are disposed in the path of movement of a surface to be controlled for successive abutment with such surface, each step control effecting abrupt release of such control surface, upon application of force thereto in excess of predetermined magnitude. In still other embodiments, one or more of such step controls are disposed in the path of movement of a valve control to provide step-wise change in the fluid flow rate of the valve.

3,570,834

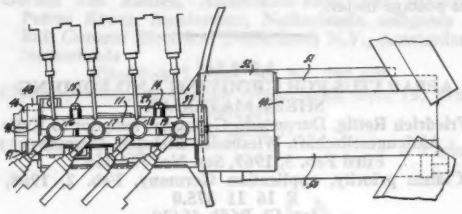
WORK FIXTURE AND FIXTURE SHUTTLE FOR MOVING A PLURALITY OF WORKPIECES TO AND FROM WORKING POSITIONS

Carl F. Hoglund, Murray Hill, N.J., assignor to Hoglund Engineering and Manufacturing Company, Inc., Berkeley Heights, N.J.

Filed Aug. 9, 1968, Ser. No. 751,599
Int. Cl. B23q 1/16; B23p 23/06
U.S. Cl. 269—25 4 Claims

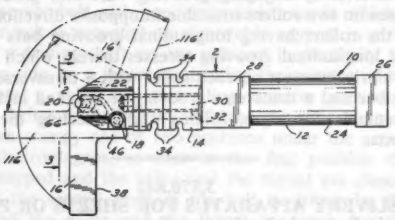
Apparatus including a shuttle slidably supported on a slide guide and movable between a retracted non working

position and an extended working position, the shuttle having novel means for receiving and holding a fixture supporting a plurality of workpieces, other means on the



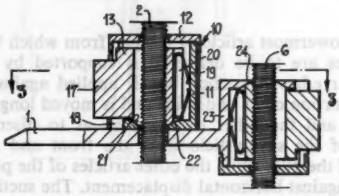
shuttle for locking the fixture in the shuttle, other means for accurately positioning the fixture in working position and other means for releasing the locking means on the shuttle.

3,570,835
POWER OPERATED CLAMPING DEVICE
Alexander W. McPherson, Farmington, Mich., assignor to Dover Corporation (De Sta-Co Division)
Filed Oct. 8, 1968, Ser. No. 765,802
Int. Cl. B25b *1/18, 5/04*
U.S. Cl. 269—32 **9 Claims**



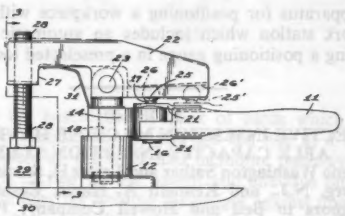
A power operated clamping device having a multiple mounting face base, a pivotally mounted clamping arm cam actuated to provide high pressure clamping and rapid wide angle opening, and a lost motion impact producing connection for clamp releasing actuation.

3,570,836
CLAMPING DEVICE FOR IMMOBILISING AN OBJECT ON A SUPPORT TABLE
Jacques Pettavel, Geneva, Switzerland, assignor to Societe Genevoise d'Instruments de Physique, Geneva, Switzerland
Filed Dec. 10, 1968, Ser. No. 782,665
Int. Cl. B25b *5/02;* **B23q** *3/06*
U.S. Cl. 269—92 **2 Claims**



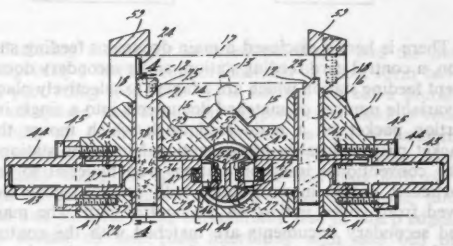
A clamping device for immobilising an object on a table has a cantilever type clip traversed by a screw which is anchored in the table. An adjustable nut borne coaxially on the screw to exert thrust against the clip can slide on the screw and comprises a slider element transversally movable in a cylindrical box element. The slider has a tapped concave surface which cooperates with the screw thread in a transversally advanced position and is spaced from the screw thread in a retracted position in which the nut can then slide freely axially. The slider can then effect a limited axial movement in the box. The two elements have cooperating conical surfaces to lock and unlock the transverse position of the slider when clamping and releasing respectively. A between box and slider urges it into advanced position. A nose of the slider opposite the concave tapping extends through a slot in the box for operational access. A second similar nut rigidly fixed on the clip is traversed by a second screw which thrusts against the table to increase the grip on the object.

3,570,837
THREE-WAY CLAMPING DEVICE
William L. Pohjola, Southfield, Mich., assignor to Dover Corporation (De-Sta-Co Division)
Filed Oct. 31, 1968, Ser. No. 772,226
Int. Cl. B25b *5/08, 5/12*
U.S. Cl. 269—94 **14 Claims**



The invention pertains to a clamping device suitable for clamping down a part to a machine bed plate by means of a holding force perpendicular to the plate. The device is manually operated with a pliers grip in a plane parallel to the plate surface and the device is fastened simply to the plate surface. A modification of the invention provides for the application of a clamping force in a plane parallel to the bed surface simultaneously with the application of a perpendicular force. The application of forces is provided by a combination of toggle and lever actions.

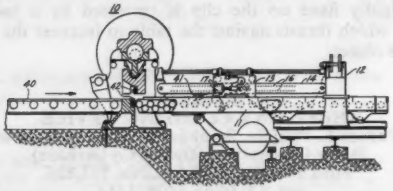
3,570,838
SPRING ACTUATED CLAMPING MECHANISM
Lyman K. Shepard, Upper Saddle River, and William D. Walters, Ridgewood, N.J., assignors to Standard Tool & Manufacturing Company
Filed Dec. 4, 1968, Ser. No. 781,178
Int. Cl. B25b *5/08*
U.S. Cl. 269—254 **7 Claims**



The clamping mechanism locates, raises, and clamps a pallet to the underside of overhanging rail elements upon the release of spring actuated plungers which move

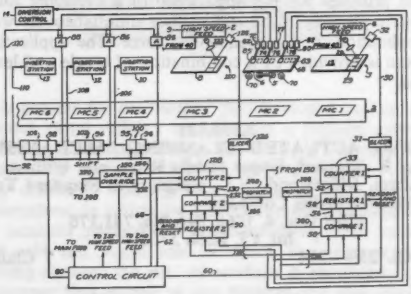
clamping pins upwardly. Upon retracting the plungers and stressing the springs, the pins are positively lowered to lower the pallet on rails on which a plurality are advanced simultaneously to the next station.

3,570,839
SHEAR GAUGE LOCKING DEVICE
Stanley A. Spadt, Bethlehem, Pa., assignor to Bethlehem Steel Corporation
Filed Apr. 18, 1969, Ser. No. 817,506
Int. Cl. B23q *3/18*
U.S. Cl. 269—315 **3 Claims**



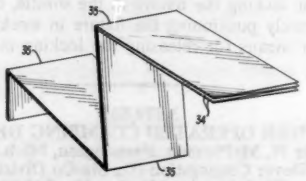
Apparatus for positioning a workpiece with respect to a work station which includes an automatic device for locking a positioning gauge in a preselected location.

3,570,840
SELECTIVE INSERTION MACHINE HAVING VARIABLE CAPACITY INSERTION STATION
Eugene Washington Sather and Lester H. Stocker, Phillipsburg, N.J., and Kenneth A. Hams, Easton, Pa., assignors to Bell and Howell Company, Phillipsburg, N.J.
Original application July 14, 1967, Ser. No. 657,721, now Patent No. 3,484,100, dated Dec. 16, 1969. Divided and this application July 17, 1969, Ser. No. 859,603
Int. Cl. B65h *39/02*
U.S. Cl. 270—58 **1 Claim**



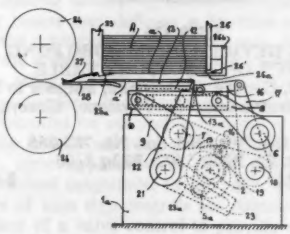
There is herein disclosed a main document feeding station, a control card feeding station, and a secondary document feeding station which are adapted to selectively place a variable number of matched documents into a single insertion packet on a main feed track which moves the packet past a plurality of conventional insertion stations. The conventional insertion stations add material to the particular packet in accordance with control signals derived from coded indicia on the control card. The main and secondary documents are matched with the control card by means of compare circuits for comparing signals that are sequentially derived from corresponding code indicia on each of the three documents that are to be matched. After the packet is moved past all of the machine's insertion stations, it is passed on to an envelope stuffing station and a postage meter. In this respect, however, the control card may also contain diversion indicia which, when present, are operative to divert a given envelope and its packet so that they are not passed through the postage meter.

3,570,841
APPARATUS FOR GROOVING AND FOLDING SHEET MATERIAL
Friedrich Rettig, Darmstadt, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Feb. 3, 1969, Ser. No. 796,066
Claims priority, application Germany, Feb. 2, 1968, P 16 11 375.0
Int. Cl. B65h *45/20*
U.S. Cl. 270—73 **9 Claims**



This invention relates to an apparatus for grooving and folding sheet material, especially paper sheets, by means of alternately engaging grooving bars and grooving recesses on two rollers rotatable in opposite directions, each of the rollers having longitudinal grooving bars thereon and longitudinal grooving recesses therein which perpendicularly intersect on each roller with a transverse grooving bar and a transverse grooving recess, and including a receptable for zigzag-folding and collecting the folded sheets.

3,570,842
DELIVERY APPARATUS FOR SHEETS OR PLATES
Louis Bonnard, Venissieux, France, assignor to Societe Jurine, Villeurbanne, Rhone, France
Filed Jan. 16, 1969, Ser. No. 791,743
Claims priority, application France, Jan. 26, 1968, 49,581
Int. Cl. B65h *3/12*
U.S. Cl. 271—14 **7 Claims**



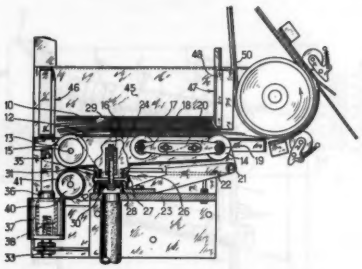
The lowermost article of the pile from which the sheets or plates are to be delivered is supported by its front and rear edge. A suction box is applied against the exposed portion of its underside and is moved longitudinally in one and the other direction so as to disengage the edges of the said article from the front and rear supports of the pile, while the other articles of the pile are retained against horizontal displacement. The suction box is lowered and the article resting thereon is positively pushed towards the feed rollers of the machine with which the delivery apparatus is associated. This sliding movement may be facilitated by momentarily suppressing the negative pressure within the suction box.

3,570,843

DOCUMENT-EXTRACTING MECHANISMS FOR MAGAZINES FOR SUPPLYING RECORD CARDS, CHEQUES OR THE LIKE

Gerben Jan Keulen, Amsterdam-Zuid, and Johannes Petrus Kroes, Amsterdam, Netherlands, assignors to Bull General Electrical (Nederland) N.V., Amsterdam, Netherlands

Filed Feb. 7, 1969, Ser. No. 797,489
Claims priority, application Netherlands, Feb. 19, 1968, 6802289
Int. Cl. B65h *3/12*
U.S. Cl. 271—32 8 Claims



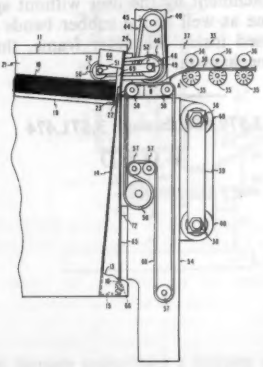
The invention concerns, in a record-card supply magazine, a mechanism for extracting documents by means of a conveyor belt with pneumatic assistance in which a conveyor belt is mounted on a movable support in proximity to a driving shaft on one side and in proximity, on the other side, to a throat controlling the passage of the documents, a valve for controlling negative pneumatic pressure being partially fast with the movable support, which can occupy one of two positions under the action of an electromagnet, so that in the first position the belt is stopped and the valve and the throat are closed, while in the second position the belt is driven by the shaft, and the valve and the throat are open for the extraction of the cards.

3,570,844

POSITIONABLE SEPARATOR

Theodore H. Anderson, Pine Island, and Delbert D. Towne, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 11, 1968, Ser. No. 744,181
Int. Cl. B65h *3/04*
U.S. Cl. 271—34 7 Claims



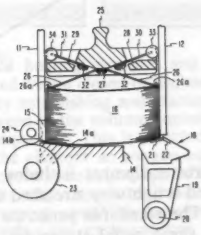
The disclosure pertains to a document separator which is adjustable to feed various size documents by positioning the separator in accordance with the width of the document stack to be processed.

3,570,845

CARD WEIGHT

Clarence J. Kellerman, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 7, 1969, Ser. No. 789,567
Int. Cl. B65h *1/06*
U.S. Cl. 271—44 5 Claims



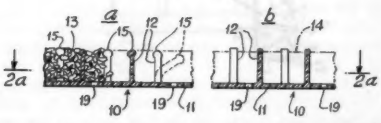
A weight for bearing on a stack of cards which are disposed in a vertical hopper and are fed one at a time from the bottom of the stack and including one-way engaging means carried by the weight and effective on the sides of the hopper for holding the weight against upward movement but allowing it to move freely downwardly.

3,570,846

SURFACING MEANS FOR SNOWLESS SKI SLOPES AND METHOD OF PRODUCING THE SAME

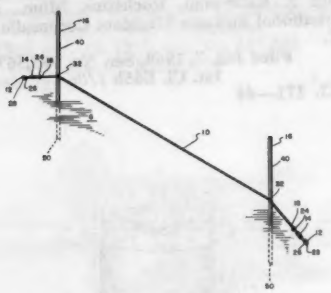
Arthur P. Weber, 1334 Surrey Lane N., Rockville Centre, N.Y. 11570, and David I. Marshall, 940 Iris Lane, Baldwin, N.Y. 11570

Filed Aug. 21, 1968, Ser. No. 754,386
Int. Cl. A63g *21/00*
U.S. Cl. 272—56.5 23 Claims



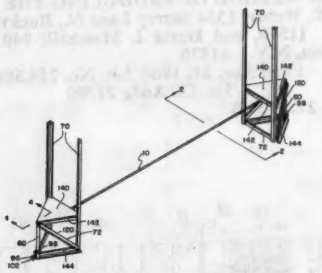
Surfacing means for snowless ski slopes and the like comprising a flexible support member in sheet form having protruding from one upper surface thereof a plurality of spaced and essentially perpendicular flexible rods forming an open brush-like surface, a bed of random shaped, generally elongated, flexible plastic particles substantially filling the spaces between said rods with portions of said particles extending above said rods, said rods and particles being substantially free of sharp edges, and means on said rods interfitting with said bed of particles restricting inadvertent displacement of said particles. Novelty is considered to reside both in the combination and in the flexible support member and artificial snow consisting of such plastic particles as separate articles of commerce.

3,570,847
TIGHTWIRE SPORTS EQUIPMENT
Duane C. Bowen, Wichita, Kans.
(2541 State St., Carlsbad, Calif. 92008)
Filed July 7, 1969, Ser. No. 839,179
Int. Cl. A63b *23/04*
U.S. Cl. 272—60 **12 Claims**



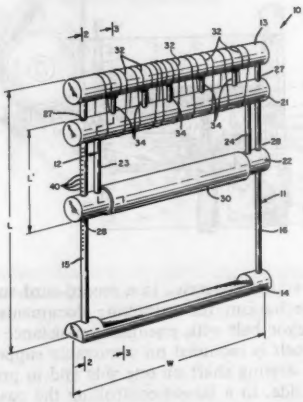
Tightwire sports equipment includes a pair of single post standards and a tightwire stretched therebetween and secured thereto. The standards penetrate the ground and, optionally, have sheet metal stampings forming at each pole (a) a ground penetration limiting annulus and (b) a platform partly supported by the wire and partly supported by the pole. The wire, optionally, has a coating to increase friction.

3,570,848
TIGHTWIRE
Duane C. Bowen, Wichita, Kans.
(2541 State St., Carlsbad, Calif. 92008)
Filed Sept. 16, 1969, Ser. No. 861,544
Int. Cl. A63b *23/04*
U.S. Cl. 272—60 **19 Claims**



Tightwire sports equipment includes standards, between which a cable is tensed, each having a foot portion compressively engaging the ground and a second portion in tension secured to the ground against an upsetting moment about the foot portion from tension. Alternatively or additionally a standard portion in the ground has a broader spade portion to resist working in the ground under cable tension. A platform is optionally provided of triangular or annular plan view.

3,570,849
HAND AND FINGER EXERCISER
Harry L. Ratchford, 4177 Hubbartt Drive,
Palo Alto, Calif. 94306
Filed July 25, 1969, Ser. No. 844,818
Int. Cl. A63b *11/08, 21/14, 23/00*
U.S. Cl. 272—68 **6 Claims**



A hand and finger exerciser comprising a parallel bar inner frame slidably supported for reciprocating movement within the plane of an outer frame to which one of the crossbars of the inner frame is anchored by a plurality of rubber bands. A sleeve rotatably mounted on the opposite parallel crossbar of the inner frame is adapted to be gripped by four fingers of the user's open hand whose palm and thumb engage the adjacent bar of the outer frame. The sleeve rotates as the user closes his hand and thus facilitates natural movements of the fingers for optimum therapeutic exercising of tendons and muscles of the hand and forearm. The uniformly transversely spaced rubber bands are looped over adjacent bars of the inner and outer frames and the ends of each band are looped over an anchor pin on the outer frame for easy removal or attachment by the user without special tools. The inner frame as well as the rubber bands and anchor pins are disposed inside the outer frame, thus resulting in a compact mechanism.

3,570,850 through 3,571,474

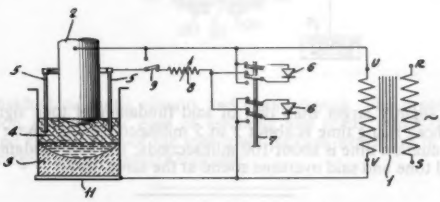
VOID

ELECTRICAL

3,571,475
ELECTROSLAG REFINING APPARATUS

Wolfgang Holzgruber, Peter Tunnergasse 16, A-8605 Kapfenberg, and Peter Machner, Mullgasse 7, A-8700 Leoben, Austria

Filed Oct. 18, 1967, Ser. No. 676,094
Claims priority, application Austria, Oct. 2, 1967, A-7290/67
Int. Cl. H05b *7/18*
U.S. Cl. 13—9 8 Claims

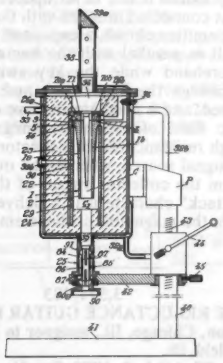


High melting point solid metal is maintained immersed in an electrically conducting, electrolyzable slag and is melted to form and maintain a pool of molten metal under said slag. An auxiliary electrode is maintained immersed in said slag. Unidirectional electric current is conducted through said auxiliary electrode and through said slag to induce fusion electrolysis in said slag so as to control ionic chemical reactions in a predetermined polarity direction taking place in said slag.

3,571,476
HEATING ELEMENT AND ELECTRIC FURNACE EQUIPPED WITH SUCH AN ELEMENT

Anne-Marie, Anthony, nee Barbier Meudon; Michele, Faucher, nee Dupre Fontenay-Le-Fleury, and Krzysztof Dembinski, Tigy, France, assignors to Agence Nationale De Valorisation De La Recherche (Anvar), Puteaux, France

Filed May 16, 1969, Ser. No. 825,306
Claims priority, application France, May 17, 1968, Oct. 24, 1968, Dec. 31, 1968, 152,366;171,236;182,837
Int. Cl. H05b *3/62*
U.S. Cl. 13—20 10 Claims

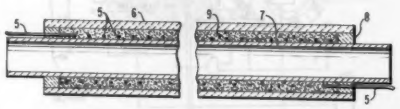


An electric furnace comprising a heating element and a preheating element wherein the heating element is suspended within the preheating element the suspension means preventing direct contact between the heating elements.

3,571,477
PROTECTION OF OXIDIZABLE ELECTRIC FURNACE ELEMENTS AT HIGH TEMPERATURES

Bert Phillips, 215 Wilpot Drive, State College, Pa.

Filed June 21, 1968, Ser. No. 739,088
Int. Cl. H05b *3/62*; H01c *1/02*
U.S. Cl. 13—25 8 Claims

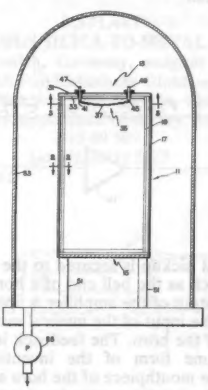


Electrical furnace heating elements and structural components are confined within closed or limited access volumes against oxidation by establishing and maintaining a low partial pressure of oxygen in the volume containing the oxidizable element or component. This is effected by including in the volume with the element an oxygen-buffering material, such as a carbonaceous material, which buffering material is potentially reactive with oxygen to react with oxygen at elevated temperatures to establish a reducing atmosphere about such elements, the carbonaceous materials being available to react with any oxygen in the confined volume.

3,571,478
VACUUM FURNACE

William P. Teagan, Billerica, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.

Filed July 25, 1969, Ser. No. 844,942
Int. Cl. H05b *3/00*; F27d *1/00*
U.S. Cl. 13—31 11 Claims



In the vacuum furnace disclosed herein, heat losses through radiation are reduced by a radiation shield of novel construction. The shield is formed of a spiral of a foil of metal in which the adjacent turns of the foil are separated by a sparse scattering of a relatively nonconducting material such as a ceramic powder.

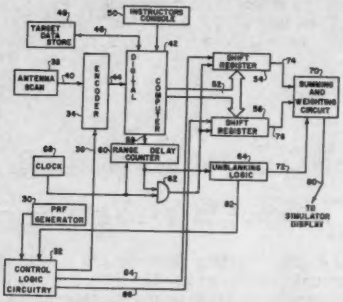
3,571,479
DIGITAL ELECTRONIC RADAR TARGET GENERATOR

Chris G. Horattas, Stow, and Richard A. Hujar, Munroe Falls, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed June 30, 1969, Ser. No. 837,608
Int. Cl. G09b *9/00*
U.S. Cl. 35—10.4 7 Claims

Digitized radar targets are stored in a memory matrix where range is "bit" oriented and azimuth is "word"

oriented. Each word in the matrix represents an azimuth line segment of a target on a radar display and the bit position within a matrix word represents the target range, each bit being the smallest range unit defined by the resolution of the display. A computer identifies the location of all targets in



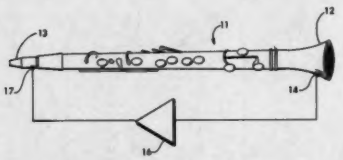
the display matrix and transfers the data to parallel-to-serial shift registers which output serial pulse trains representative of the target words. Summing of the shift register outputs results in a signal having analogue characteristics and capable of use in a simulator visual display.

3,571,480

FEEDBACK LOOP FOR MUSICAL INSTRUMENTS

Clyde L. Tichenor, Sepulveda, Calif., and Jody C. Hall, Elkhart, Ind., assignors to Warwick Electronics Inc., Chicago, Ill.

Filed July 5, 1967, Ser. No. 651,178
Int. Cl. G10m *3/00;* **G10d** *9/02*
U.S. Cl. 84—1.05 **1 Claim**



An electrical pickup is secured to the output of a musical instrument, such as the bell end of a horn. The signal is amplified. The output of the amplifier is applied through a feedback loop to the input of the musical instrument, such as the mouthpiece of the horn. The feedback loop includes a small speaker. In one form of the invention, the speaker is mounted at the mouthpiece of the horn so that its output fortifies the input acoustic energy developed at the mouthpiece by the instrument player. In another form of the invention, the speaker consists of an earphone worn by or held against the ear of the instrument player. In this case the instrument player himself modifies his playing mode in accordance with what he hears in the earphone. Thus the player himself is involved in the feedback loop.

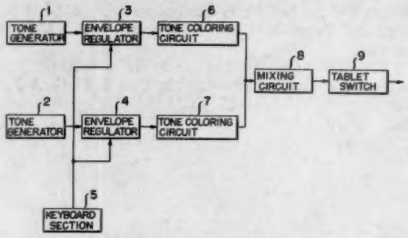
3,571,481

MARIMBA TONE FORMING SYSTEM FOR AN ELECTRONIC MUSICAL INSTRUMENT

Takeshi Adachi, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Japan

Filed Jan. 15, 1969, Ser. No. 791,315
Claims priority, application Japan, Jan. 18, 1968, 2792/43
Int. Cl. G10h *3/00*
U.S. Cl. 84—1.13 **7 Claims**

A marimba tone forming system mixes a fundamental tone signal of a flute voice, having an envelope whose rising time is about 10 milliseconds and whose attenuation time is about 1 second, with a sixth or third order overtone signal of the same voice, having an envelope whose maximum amplitude



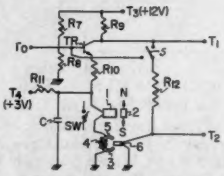
is slightly larger than that of said fundamental tone signal, whose rising time is about 3 to 5 milliseconds and whose attenuation time is about 100 milliseconds. The said fundamental tone and said overtone sound at the same time.

3,571,482

ATTACK AND SUSTAIN SWITCHING CIRCUIT FOR AN ELECTRONIC MUSICAL INSTRUMENT

Yasuji Uchiyama, Hamakita-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha,, Nakazawa-Cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Apr. 1, 1969, Ser. No. 811,788
Claims priority, application Japan, Apr. 2, 1968, 21197/68
Int. Cl. G10f *1/02*
U.S. Cl. 84—1.13 **4 Claims**



An attack switching circuit is composed of a transistor, a key switch connected in the emitter circuit of the transistor, the transistor being connected with an input signal source and so biased as to be rendered into a nonconducting state when the key switch is left in an opened state, a coil of an electromagnet connected in series with the key switch and included in the emitter circuit, a capacitor also included in the emitter circuit in parallel with the key switch and coil and charged beforehand while the key switch is opened and discharged through the key switch and coil when the key switch is closed, and a magnetosensitive element disposed in the magnetic field of the electromagnet and connected through a high resistance to the collector of the transistor or to the input signal source, whereby an output of "sustain" is delivered from the collector circuit of the transistor and an output of "attack" characteristic is delivered from a junction point between the magnetosensitive element and the high resistance.

3,571,483

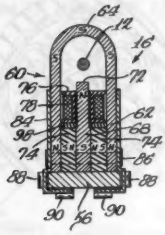
VARIABLE RELUCTANCE GUITAR PICKUP SYSTEM

Peter Davidson, Chicago, Ill., assignor to Hammond Corporation, Deerfield, Ill.

Filed Feb. 2, 1970, Ser. No. 7,476
Int. Cl. G10h *3/00*
U.S. Cl. 84—1.16 **11 Claims**

A variable reluctance guitar pickup system which provides six individual pickups for the six steel strings, each developing an output voltage with string movement which is substantially insensitive to the plane of string vibration. The pickups have a central post of one magnetic polarity and a U-shaped enclosing yoke of opposite polarity. The string passes cen-

trally through the yoke such that displacement of the string in any direction changes the reluctance of the magnetic circuit to which a pickup coil is sensitive. The yokes, all of the same polarity, provide extremely high isolation of the individual magnetic circuits and sound signals. The organization provides for ease of assembly and ready removability and replacement of the individual pickups which are in cartridge form and interchangeable.

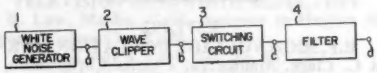


3,571,484

WHITE NOISE SWITCHING SYSTEM FOR PERCUSSION TONE SYNTHESIS

Yasunori Hirose, Shizuoka-ken, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Jan. 29, 1969, Ser. No. 794,947
Claims priority, application Japan, Jan. 30, 1968, 43/ 5171
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.19 **4 Claims**



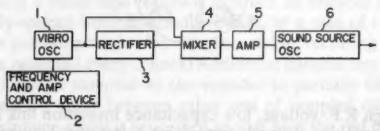
A switching system in which a wave clipping circuit removes one side of a white noise signal, and a switching circuit switches this one-side-removed signal in accordance with bias control between a conducting region and a cutoff region, the white noise signal wave being caused to enter the cutoff region from the not-removed side during the signal attenuation process in the switching circuit.

3,571,485

VIBRATO SYSTEM FOR ELECTRICAL MUSICAL INSTRUMENTS

Takeshi Adachi, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Sept. 17, 1969, Ser. No. 858,767
Claims priority, application Japan, Sept. 26, 1968, June 27, 1969, 43/69085;44/50880
Int. Cl. G01h *1/04*
U.S. Cl. 84—1.25 **4 Claims**



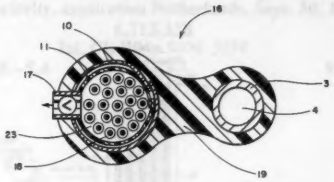
In an electronic musical instrument including a tone generator, a vibrato signal generated by a vibrato oscillator is supplied to the tone generator together with a DC voltage proportional to the amplitude of the vibrato signal so as to cause the oscillation frequency of the tone generator to vary by a greater amount above the nominal frequency than below.

3,571,486

PRESSURIZED COMMUNICATION CABLE AND SYSTEM

Walter T. Kennedy, 1120 Prescott Road, Newton Square, Pa.

Filed Feb. 7, 1969, Ser. No. 797,490
Int. Cl. H01b *7/00*
U.S. Cl. 174—11 **12 Claims**



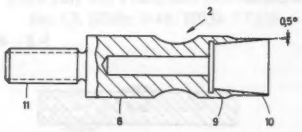
Disclosed herein is a pressurized communication system and a novel-type cable forming a significant component of the pressurized system. Such a system is composed of a plurality of spaced-apart enclosures, which may contain means for transmitting, modifying, amplifying or repeating an electrical signal. Each of the enclosures is connected one to another by a novel-type cable, which comprises a plastic sheath surrounding and defining a first cable portion containing electrical conductors and a second cable portion containing a longitudinally disposed cavity adapted for the transport of a fluid (dry gas). The electrical conductors of the cable are in electrical connection with a transmitter, repeater, modifier, or amplifying means and the fluid carrying cavity portion of the cable may be in pneumatic communication with the inside of the enclosure and physically separable either in whole or in part from that portion of the cable containing the electrical conductors.

3,571,487

VITREOUS SILICA-TO-METAL SEAL

Alfred Tietze, Munich, Germany, assignor to Patent-Treuhand-Gesellschaft Fur Elektrische Gluhlampen MBH

Filed Nov. 18, 1968, Ser. No. 776,715
Claims priority, application Germany, Nov. 30, 1967, P 15 89 309.1
Int. Cl. H01j *5/32*
U.S. Cl. 174—50.61 **5 Claims**

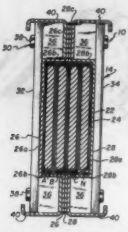


A refractory metal hollow cap has a forward end of its interior frustoconical enlarging toward said end which is feather edged to foil thickness with the added assistance of inward tapering of the exterior surface of the cap in approach to said end, the interior hollow conical portion of the cap receives a correspondingly tapered end margin of a vitreous capillary tube; a rod extends from outside of the lamp axially through the refractory cap and the vitreous capillary tube, and where it passes through the stem or more solid end of the cap it is sealed thereto by fusion or welding; the conical end margin of the vitreous capillary tube substantially fills the conical hollow portion of the cap; the seal is completed by collapsing a juxtaposed area of a vitreous envelope in tight sealing engagement against the outside tapering surface of the cap thus including the feather edge within vitreous material both inside and outside with extensive sealing surface.

3,571,488
ENCLOSED BUS DUCT

William R. Douglass, Somerset, N.J., assignor to Federal Pacific Electric Company, Newark, N.J.

Filed Apr. 11, 1969, Ser. No. 815,310
Int. Cl. H02g 5/06, 5/08
U.S. Cl. 174—68 8 Claims



The disclosed bus duct has bus bars stacked face-to-face and contained in a pair of confronting channels forming part of a heat-dissipating and structurally stiff elongated housing. Through electrical insulation that separates the bus bars from each other and from the housing, the stack of bus bars is edgewise and laterally in intimate heat-transfer relation to the channels of the housing. Stiffening pairs of elongated sheet steel members that are J-shaped in cross section are united to the flanges of the channels. The latter are of nonmagnetic material, especially aluminum to avoid increasing the inductance of the bus bars. The housing includes sheet metal cover parts at the joint-forming ends of the bus bars. The mutually contacting portions of the cover parts and the housing engaged by the cover parts have low-resistance electroplated contact surfaces.

3,571,489
TRANSPARENT SUBSTRATE HAVING GRADED OPTICAL DENSITY CONDUCTORS THEREON

Edgar B. Coale, Philadelphia, Pa., assignor to Max Levy & Company, Inc., Philadelphia, Pa.

Filed Dec. 23, 1966, Ser. No. 604,233
Int. Cl. H05k 1/02
U.S. Cl. 174—68.5 8 Claims

Electrical conductors in an array which are present in transparent insulating material such as glass and transparent plastic cause diffraction which interferes with viewing an image. By grading the optical density of the conductors from a maximum near the center to a minimum remote from the center of each conductor, diffraction is markedly reduced.

3,571,490
FLAME RESISTANT ELECTRIC CABLE

Steve Bunish; Ting H. Ling, Marion, and William A. Beasley, Fairmont, Ind., assignors to Anaconda Wire and Cable Company

Filed Jan. 16, 1970, Ser. No. 3,406
Int. Cl. H01b 7/02
U.S. Cl. 174—113 9 Claims

A cable that will withstand a severe flaming burlap test is constructed without any metal barrier or heavy asbestos layer using ethylene-propylene insulation, polychloroprene jackets

and sheath and two film-supported asbestos tapes only 6 mils thick.

3,571,491
ELECTRICAL INSULATING COMPOSITIONS OF POLYESTER RESIN, EPOXY RESIN, POLYVINYL ACETAL RESIN AND FINELY DIVIDED FILLER

Henry J. Markowski, Scotia, N.Y., assignor to General Electric Company

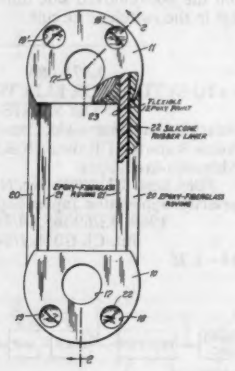
Filed Aug. 22, 1968, Ser. No. 754,712
Int. Cl. H01b 3/40, 3/42, 3/44
U.S. Cl. 174—121 7 Claims

Acid-rich polyester epoxy resin compositions containing polyvinyl acetal and finely divided filler are characterized by improved mechanical and electrical qualities and are useful as coating and impregnating compositions for tapes.

3,571,492
R.F. HIGH VOLTAGE INSULATION LINK

August C. Clark, Manhattan; Charles Christianson, Bronx; Julius Kaminetsky, Forest Hills, N.Y., and Edward F. Duffy, Rockville, Md.
The United States of America as represented by the Secretary of the Navy

Filed Mar. 25, 1969, Ser. No. 810,265
Int. Cl. H01b 17/02
U.S. Cl. 174—178 4 Claims

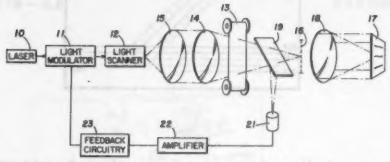


A high R.F. voltage, low capacitance insulation link having a high breaking strength comprising a pair of galvanized steel thimbles or saddles joined by a pair of overlayed fiberglass loops. The loops are circumferentially filament wound epoxy impregnated S-type fiberglass roving with a layer of silicone rubber therebetween. The inner layer or loop abuts the peripheral surface of the saddles and is bonded thereto by an epoxy resin. All the inner voids of the saddle are filled with epoxy filler and the exposed surfaces of the loops are coated with a flexible epoxy paint. Additionally, the saddles are provided with inspection holes aligned with the loops.

3,571,493
INTENSITY MODULATED LASER IMAGERY DISPLAY

Charles E. Baker, and Jack J. Burch, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 20, 1967, Ser. No. 676,786
Int. Cl. H04n 1/00, 1/46
U.S. Cl. 178—5.2 26 Claims

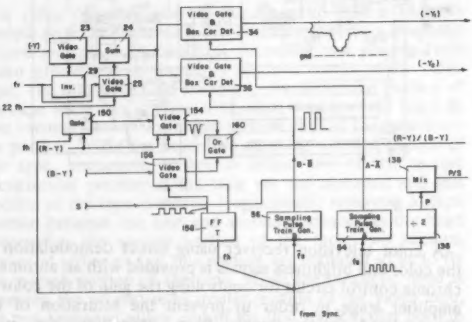


Apparatus for producing a display of imagery including a laser generating a high-intensity collimated light beam which is intensity modulated by means of a light modulator and caused to sweep the image area by a light scanner. After the sweeping light beam passes through the imagery, it is focused by means of a condensing lens and partially reflected by means of a beam splitter to a light-sensitive detector. A signal generated by the detector is amplified and characterized into a control signal for the light modulator. Light passing through the beam splitter is focused by a projection lens on a display raster.

3,571,494
TELEVISION BANDWIDTH REDUCTION

Russell R. Law, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed July 8, 1966, Ser. No. 563,763
Int. Cl. H04n 5/78; H04m 9/38
U.S. Cl. 178—5.4 4 Claims

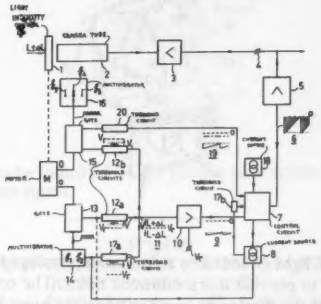


This is a video tape recorder in which an encoder samples equally-spaced luminance information, at a rate of $(n + \frac{1}{2})$ timers per horizontal video line, in a stable, recurring pattern that is repeated every 3 lines. Additional parallel sets of data $(-Y_k)$ can be sampled by the encoder to partially fill in the information areas between other sets of sampled data. The chrominance signal is processed so that only the red information signal (R–Y) and then the blue information signal (B–Y) are gated alternately on a horizontal video line-by-line basis. The parallel sets of sampled luminance and chrominance signals are recorded on parallel recording tracks along with a pilot signal P. To reconstruct the chrominance signals, the played-back chrominance signals are delayed for one horizontal video line and combined with the nondelayed chrominance signals to obtain a red signal (R–Y), a blue signal (B–Y), and a green signal (G–Y).

3,571,495
LIGHT-INTENSITY CONTROL DEVICE FOR A TELEVISION CAMERA

Marcel Johan Marie Konings, Emmasingel, Eindohoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 18, 1968, Ser. No. 760,448
Claims priority, application Netherlands, Sept. 30, 1967, 6,713,338
Int. Cl. H04n 9/04, 5/34
U.S. Cl. 178—5.4 9 Claims

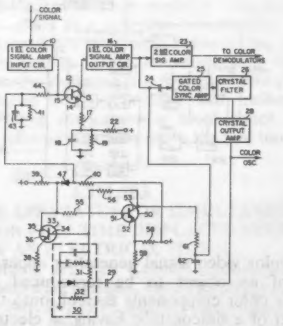


A light-intensity control system for a television camera, in which a capacitor circuit is charged by the video signal and discharged by a control current. The system has a first threshold circuit with narrow limits for controlling the aperture, in order to obtain accurate, but slow, control. The circuit also has a second threshold circuit with wider limits that effects a more rapid control and increases the control current discharging the capacitor.

3,571,496
COMBINED ACC AMPLIFIER AND REGENERATIVE COLOR KILLER

William H. Slavik, Oak Lawn, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed July 29, 1968, Ser. No. 748,429
Int. Cl. H04n 9/48; H03k 17/00
U.S. Cl. 178—5.4 8 Claims

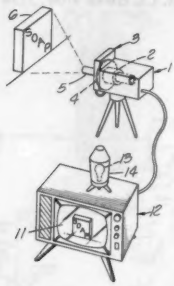


The ACC amplifier of a color television receiver is also used as part of a regenerative color killer circuit in order to reduce the number of components used.

3,571,497
LIGHT PUMP FOR ENHANCING SUBJECTIVE COLOR

James F. Butterfield, Van Nuys, Calif., assignor to The Battelle Development Corporation, Columbus, Ohio

Filed May 8, 1968, Ser. No. 727,412
Int. Cl. H04n 9/22
U.S. Cl. 178—5.4 22 Claims

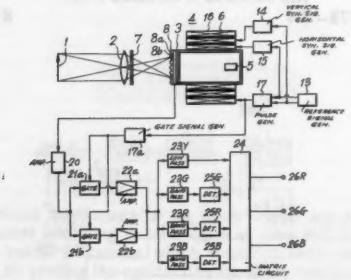


Colored light is added to information displayed in subjective color to provide more saturated color. The colored light is added at the display to impinge upon the eyes of a viewer. Hues of colored light may be synchronized with the subjective color information sequence to enhance selected subjective colors and to reduce flicker. There are also disclosed various forms of light pumps, the manner in which synchronization is achieved, and the effect of selected colors on certain subjective colors.

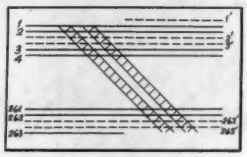
3,571,498
SINGLE TUBE COLOR CAMERA UTILIZING COLOR FILTER STRIPS AND MODIFIED INTERLACING

Hiromichi Kurokawa, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 5, 1969, Ser. No. 796,708
Claims priority, application Japan, Feb. 5, 1968, 43/7043
Int. Cl. H04n 9/06
U.S. Cl. 178—5.4 10 Claims



In a color video signal generating apparatus in which an image of an object to be reproduced is projected, as stripelike color components thereof, onto the photoconductive layer of a vidicon tube having an electrical output composed of successive signals corresponding to the light intensities successively encountered by the electron beam of the tube in scanning the photoconductive layer, such stripelike components of the image are extended obliquely to the line scanning direction, and the electron beam is deflected from the normal scanning line, preferably by one-half the pitch between successive scanning lines of a standard raster, for every other scanning line of such raster, so that, when a picture is reproduced from the tube output with the standard

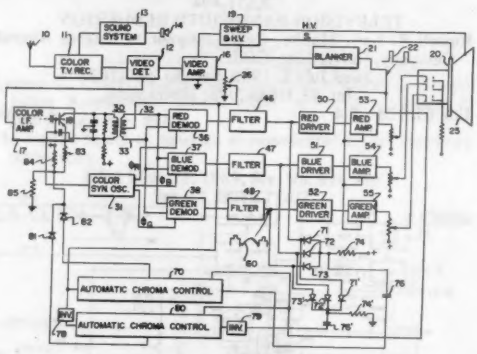


raster, periodic noises appearing in the tube output will be randomly distributed in the reproduced picture and hence not readily perceptible.

3,571,499
AUTOMATIC SATURATION CONTROL FOR A COLOR TELEVISION RECEIVER

Robert B. Hansen, Arlington Heights; William H. Slavik, Oak Lawn, and Arthur F. Seymour, Schaumburg, Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 1, 1969, Ser. No. 811,887
Int. Cl. H04n 9/48
U.S. Cl. 178—5.4 14 Claims



A color television receiver using direct demodulation of the color and brightness signals is provided with an automatic chroma control circuit for controlling the gain of the color IF amplifier stage in order to prevent the saturation of the demodulated color signals from exceeding the peak brightness signals. The output of the video amplifier is supplied through a peak detector to one input of a differential amplifier, the other input to which is obtained through a second peak detector from the outputs of the color demodulators. The output of the differential amplifier is used to control a switching transistor, which supplies D.C. control signals to the color IF amplifier to control the bias on the final stage thereof.

A pair of comparison circuits of the same type are provided, with the second circuit being responsive to the peak blackness signals and the saturation of the color components occurring during the black-going portions of the video signals, while the first comparison circuit compares the white-going peak portions of the video signal with the saturated color appearing during the white-going portions. The blanking circuit operates to disable the comparison circuits during the blanking intervals, so that the automatic chroma control circuit is responsive only to the video signals present during the trace portion of the video signal.

3,571,500

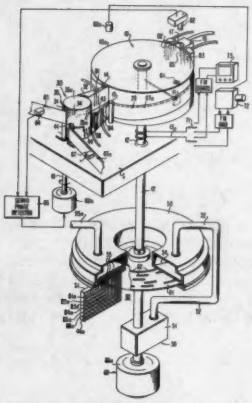
REPRODUCTION SYSTEM USING AN INCREMENTAL SCAN

Ernie G. Nassimbene, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of application Ser. No. 653,782, July 17, 1967, now abandoned. This application Jan. 15, 1968, Ser. No. 697,846

Int. Cl. G11b *3/40;* H04n *1/16, 5/78*

U.S. Cl. 178—6.6 12 Claims



A video recorder wherein the magnetic tape is helically wound about a drum with the drum containing a magnetic record and playback head for recording and playing back video information on angularly disposed tracks on the video tape. The magnetic head scans a first semicircular portion of the tape while this portion of the tape is being held fixed by two vacuum brakes positioned at both ends of the semicircular portion. While the head is so scanning this first portion of the tape, pneumatic brakes at either end of the second semicircular portion of the tape are not actuated and this portion of the tape is moved longitudinally removing a slack portion between the first and second portions. As the head approaches the second portion of the tape, two vacuum brakes at either end of this portion are actuated so as to fix the second portion of the tape. While the magnetic head is scanning the second semicircular portion of the video tape, the two brakes at either end of the first semicircular portion are deactivated and this portion is moved longitudinally the distance between two tracks. The cycle then repeats and the head scans the next track.

3,571,501

ON SCREEN TUNING INDICATOR DEVICE FOR TELEVISION RECEIVER

Keisuke Yamamoto, Hirakata-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

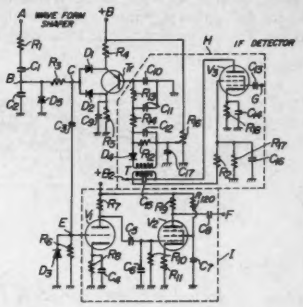
Filed June 10, 1968, Ser. No. 735,626

Claims priority, application Japan, Sept. 18, 1967, Feb. 26, 1968, Feb. 26, 1968, Feb. 26, 1968, 42/60394, 43/12717, 43/12718, 43/12719

Int. Cl. H04n *5/50;* H03k *5/00*

U.S. Cl. 178—5.8 6 Claims

This specification discloses a tuning indicator device for a television receiver, wherein a waveform having a slope depending upon the horizontal or vertical synchronizing circuit is sliced at upper and lower levels in accordance with a voltage which depends upon the state of tuning, and a rectangular wave is formed from the sloped portion of said sliced



waveform to be indicated on the picture tube screen as a tuning indication signal.

3,571,502

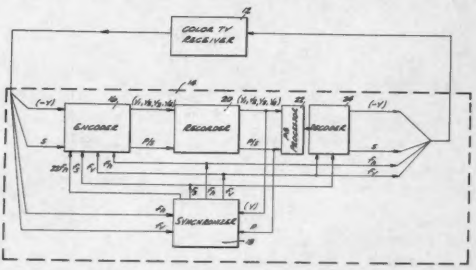
TV BANDWIDTH REDUCTION SYSTEM WITH REDUCED FIELD RATE

Russell R. Law, Pacific Palisades, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 7, 1968, Ser. No. 735,383

Int. Cl. H04n *5/78*

U.S. Cl. 178—6.6 14 Claims



A video tape recorder system including an encoder for sampling video information in a repetitive pattern of evenly spaced information elements; a multichannel recorder coupled to record the encoded information; and a playback processor for playing back each encoded information element four times—once as a real time information element, and the other three times positioned between the real time information elements as artificial information elements—preferably from the real-time line and the subsequent and preceding interlaced lines of leading and trailing fields, respectively, to fill in the otherwise blank space between spaced real time information elements in the real time field.

3,571,503

METHOD AND APPARATUS FOR SIMULTANEOUSLY RECORDING ON FILM TIME DISPLACED SEGMENTS OF AN ELECTRICAL SIGNAL

Renville H. McMann, Jr., New Canaan, Conn., assignor to Columbia Broadcasting Systems, Inc., New York, N.Y.

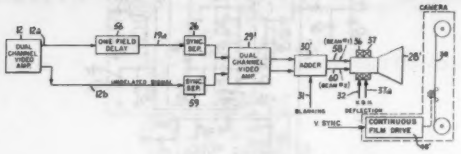
Filed Nov. 24, 1967, Ser. No. 691,093

Int. Cl. H04m *5/84;* H04n *5/86*

U.S. Cl. 178—6.7 8 Claims

Recording method and apparatus for simultaneously recording on film two time displaced segments of an electrical signal, in which one or more recording beams sweeping transversely of the film are modulated in intensity by the segments, the first of which is delayed in time from its occur-

rence by an amount equal to the original time displacement between the signal segments. Two recording beams, each modulated by a respective signal segment, or one beam, sequentially modulated with the signal segments, can be employed. Where the signal segments comprise the field signals of a composite television signal, the recording beam(s) may

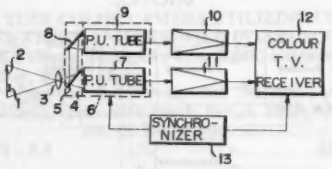


be positioned, to record the corresponding field lines adjacent to one another or, alternatively, in separate frames on the record medium. Both intermittent and continuous film motion may be employed. A variable delay servoloop responsive to the television synchronization pulses maintains the exact delay so that the fields are recorded simultaneously.

3,571,504
INFRARED RAY TELEVISION APPARATUS

Yuji Kiuchi, Yokohama-shi; Hiroo Hori, Kawasaki-shi; Mineo Iwasawa, Kanagawa-ken, and Junichi Hashimoto, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd, Kawasaki-shi, Japan

Filed Nov. 18, 1968, Ser. No. 776,445
Claims priority, application Japan, Nov. 22, 1967, Jan. 6, 1968, 42/97825;43/541
Int. Cl. H04n *7/18*
U.S. Cl. 178—6.8 **3 Claims**



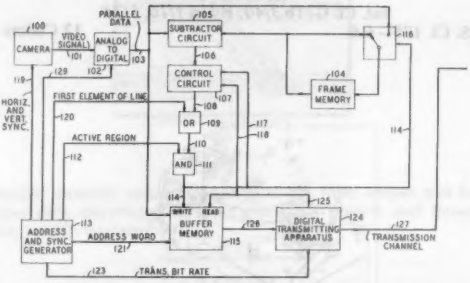
An infrared ray television apparatus wherein an incident light from a foreground subject is separated into an infrared ray and visible ray, these rays are converted to television signals by the respective image pickup means, and said signals corresponding to the infrared and visible rays are supplied to the input terminals of the red color electron gun and green color electron gun involved in a color television image-reproducing means thereby to reproduce on the same screen the infrared ray image and visible ray image in red and green colors respectively.

3,571,505
REDUNDANCY REDUCTION SYSTEM FOR VIDEO SIGNALS

Frank W. Mounts, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Aug. 2, 1968, Ser. No. 749,770
Int. Cl. H04n *5/38, 5/44*
U.S. Cl. 178—6.8 **20 Claims**

A redundancy reduction system is described for processing video signals by comparing each digital word derived from the video signal amplitude for each picture element with a stored word corresponding to the amplitude for that picture element in a previous frame. Only if a significant difference exists between the new word and the previously stored word is the new amplitude word transmitted to the receiving location. The position of the transmitted amplitude word in the video frame is indicated to the receiver by an address word which is also transmitted. The address word indicates only the relative position of a picture element in the active region of the horizontal scanning line. The first picture element of the video frame is provided with a unique address word and in addition, the first picture element of each line is forced to be transmitted whether or not a significant difference exists

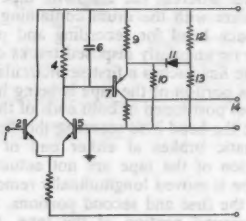


between the new amplitude and previously stored amplitude. The received amplitude and address words are stored before processing in a receiving buffer memory. Initial readout of the receiving buffer memory is prohibited until a sufficient number of words have been received in order to insure proper synchronization with this unique method of addressing.

3,571,506
PULSE SHAPING MEANS FOR BLANKING PULSES

John David Millward, Orpington, England, assignor to The Rank Organisation Limited, London, England

Filed Jan. 2, 1968, Ser. No. 695,091
Claims priority, application Great Britain, Feb. 7, 1967, 5712/67
Int. Cl. H04n *5/38*
U.S. Cl. 178—7.1 **2 Claims**



A television video signal blanking pulse generator produces relatively clean blanking pulses by being arranged to increase the rise and fall rates of each blanking pulse amplitude as said amplitude passes a predetermined limit, suitably the maximum video signal amplitude.

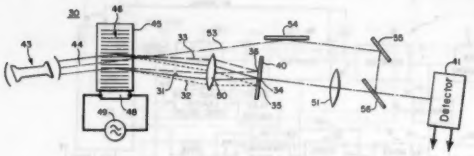
3,571,507
OPTICAL APPARATUS FOR DEVELOPING DISPLAY INFORMATION SIGNALS OF FREQUENCY MULTIPLEX CHARACTER

Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed May 15, 1968, Ser. No. 729,243
Int. Cl. H04n *3/10, 5/30*
U.S. Cl. 178—7.1 **10 Claims**

By plural diffraction of a single beam of monochromatic light, a plurality of beams of such light, each of a different frequency, are caused to follow respectively different paths toward an image defining medium. On traversing the medium, the different beams are differently attenuated in correspondence with variations in contrast or opacity

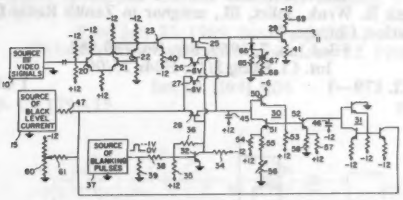
throughout the image. After traversing the medium, the beams are heterodyned with another beam upon a photodetector to produce a plurality of output signals of respective different frequencies and individually having amplitudes proportional to the respective different beam intensities. Those output signals define a video image in a manner such that the various frequency components correspond to spatial position and their respective amplitudes correspond to brightness at each position.



3,571,508
BLANKING AND BLACK LEVEL CONTROL CIRCUIT FOR VIDEO SIGNALS

Frederik J. Van Roessel, Mahwah, N.J., assignor to U. S. Philips Corporation, New York, N.Y.

Filed Aug. 27, 1968, Ser. No. 755,578
Int. Cl. H04n *3/24*
U.S. Cl. 178—7.1 **8 Claims**

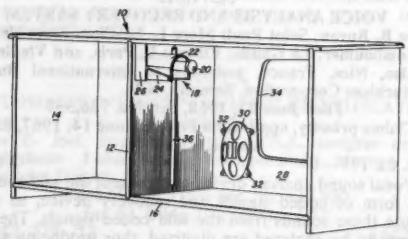


A blanking and black level insertion circuit for video signals includes a switch which, during the scan period connects the video source directly to the video output and provides a loop circuit including an amplifier and a shunt capacitor. An external black level control current is inserted in the loop circuit at the output of the amplifier. During the blanking period the loop circuit is opened and the video signal is applied to the video output by way of the amplifier, with the shunt capacitor still connected to the circuit and the black level control current still being inserted at the amplifier output.

3,571,509
INHIBITING TRANSFER OF VIBRATORY ENERGY BETWEEN AN ACOUSTIC REPRODUCER AND A FLYING SPOT SCANNER TUBE

Donald J. Cross, Tonawanda, and Ira Eglowstein, Williamsville, N.Y., assignors to Sylvania Electric Products Inc.

Filed Oct. 4, 1968, Ser. No. 765,191
Int. Cl. H04n *5/64*
U.S. Cl. 178—7.9 **5 Claims**

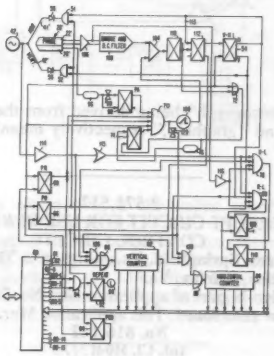


Vibrations from a speaker mounted on a wall of a cabinet of a television receiver via the walls of the cabinet are minimized by providing a slot in the wall which mounts the equipment to isolate the vibrations from the equipment.

3,571,510
COORDINATED DATA DETERMINATION SYSTEM

Richard Dean Weir, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 27, 1968, Ser. No. 787,421
Int. Cl. G08c *21/00*
U.S. Cl. 178—18 **10 Claims**



The use of graphical display devices in conjunction with digital computer and data processing systems is enhanced by a rectangular, or XY, coordinate determinate system providing a completely unobstructed view of the display by means of electromagnetic fields propagated in the plane of the display. A pair of wire radiating elements are arranged parallel to each other at opposite edges of the display for radiating opposing electromagnetic fields therebetween at a frequency of the order of 25 kilohertz (kHz.) for each ordinate direction (X or Y). An electromagnetic field probe tuned to the frequency of the radiation derives analogue voltages proportional to the distances of the probe with respect to the null at the center of the display. The analogue voltages are converted to digital representation by means of analogue-to-digital converters (ADC). The conversion circuitry comprises a ramp voltage generator having a characteristic compensating for the nonlinear characteristic of the electromagnetic fields which controls an X and Y counter advanced by pulses derived from the 25 kHz. oscillator under control of circuitry comprising conventional gating circuits and latches. Cartesian coordinates are derived from the X and Y coordinate data thus far developed by means of a quadrant detector which is switched by the control circuitry in response to energy picked up by the probe in the particular quadrant at which it is positioned for the desired data input.

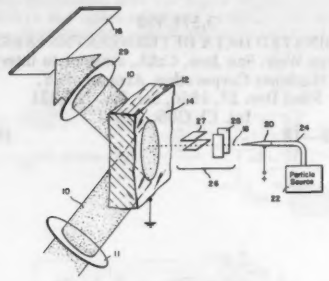
3,571,511
DROSOGRAPH DISPLAY SYSTEM

Jon H. Myer, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 25, 1968, Ser. No. 770,504
Int. Cl. H04n *3/02*
U.S. Cl. 178—7.30 **19 Claims**

The disclosed system serves to provide live images on a display screen by modulating a light beam projected towards the display screen through a transparent medium having a totally internally reflecting surface. The modulation is accomplished by selectively frustrating the total internal reflection with a stream of solid or liquid particles which are capa-

ble of being applied to the reflecting surface electrostatically. Thus, the system may be called a Drosograph Display

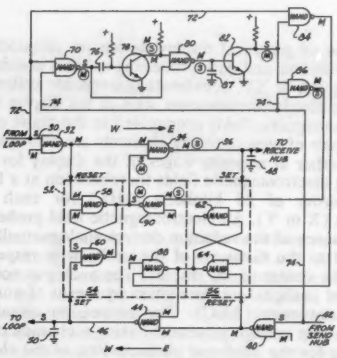


System, "drosograph" being derived from the Greek words, "drosos" and "graphein," respectively meaning "dew" and "to write".

3,571,512
INTERRUPT CIRCUIT FOR USE IN A DUPLEX CONTROL CIRCUIT

Alvaro Quiros, Springfield, Va., assignor to The Susquehanna Corporation, Fairfax, Va.

Continuation-in-part of application Ser. No. 789,842, Jan. 8, 1969, now abandoned. This application Mar. 7, 1969, Ser. No. 816,142
Int. Cl. H04l 5/16
U.S. Cl. 178—58 **11 Claims**



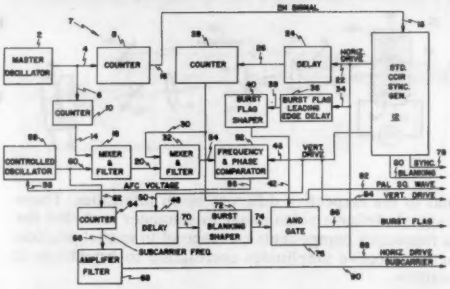
The interrupt circuit is combined with a half-duplex repeater having a duplex control circuit. When an interrupt signal is received, the interrupt circuit, after the passage of a predetermined interval of time, overrides the control which the duplex control circuit is exercising on the passive repeater channel, and lets the interrupt signal through to terminate transmission in the communication system.

3,571,513
PAL COMPATIBLE COLOR TELEVISION SYNCHRONIZATION GENERATOR

Ronald C. Ward, and Daniel C. Perry, Salt Lake City, Utah, assignors to Telemation, Inc., Salt Lake City, Utah

Filed Mar. 21, 1969, Ser. No. 809,343
Int. Cl. H04l 7/00
U.S. Cl. 178—69.5 **10 Claims**

Color television synchronizing systems, including method and apparatus for generating timing signals compatible with the phase alternate line (PAL) standard, the apparatus comprising a conventional CCIR or comparable synchronizing generator clocked by signals derived from a master oscillator and from which all synchronizing signals other than the color subcarrier are derived. The color subcarrier is derived from a

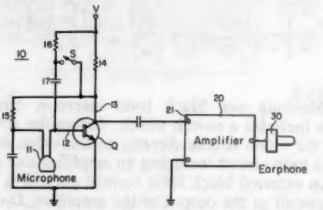


slave oscillator, the output of which is correlated in frequency and phase, to comply with the PAL standard, with signals derived from the master oscillator by use of an automatic frequency control servo loop.

3,571,514
HEARING AID TONE CONTROL

Kenneth R. Wruk, Joliet, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Jan. 7, 1969, Ser. No. 789,581
Int. Cl. H03g 5/12; H04r 25/00
U.S. Cl. 179—1 **1 Claim**



A tone control circuit for a transistorized hearing aid amplifier comprising a transistor amplifier stage with an electromagnetic hearing aid microphone connected to its input. The output has a resistor connected thereto for establishing the operating point of the stage. A switch is provided for connecting a second resistor and a capacitor in parallel with the first resistor to change the operating point of the transistor in such a manner as to lower the input impedance of the transistor. The decrease in input impedance reduces the high frequency response of the microphone-transistor combination and thereby provides treble tone control action.

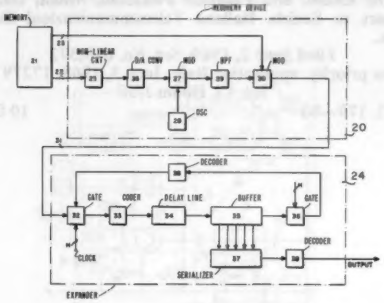
3,571,515
VOICE ANALYSIS AND RECOVERY SYSTEM

Rene B. Buron, Saint Paul; Marc L. Levilion, Nice; Henri N. Nussbaumer, La Gaude; Etienne P. Paris, and Vladimir R. Riso, Nice, France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 12, 1968, Ser. No. 736,357
Claims priority, application France, June 14, 1967, 8568
Int. Cl. G10l 1/00
U.S. Cl. 179—1 **3 Claims**

Vocal sound analysis device to represent the said sounds in the form of coded signals and recovery device, to reconstitute these sounds from the said coded signals. The vocal sounds to be analyzed are digitized, thus producing a signal which is time compressed, then decoded to obtain an analogue signal which is frequency expanded. The analysis is

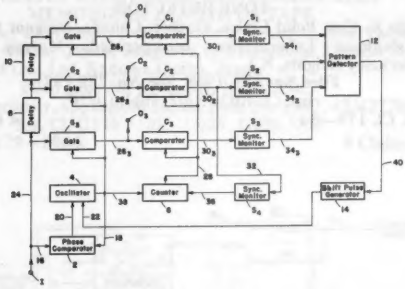
carried out on this last signal, by means of any type of analyzing device. The resulting signals are digitized and stored. At recovery, the coded signals are converted into frequency expanded analogue signals on which the reconstitution device operates. The reconstituted vocal signals are then digitized, expanded in time and decoded in order to obtain the original vocal sounds.



3,571,516
DEMULTIPLEXING APPARATUS

Chishio Ohyama, and Kotaro Kato, Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed July 22, 1969, Ser. No. 843,513
Claims priority, application Japan, July 22, 1968, 43/51742
Int. Cl. H04j *3/06*
U.S. Cl. 179—15 **9 Claims**



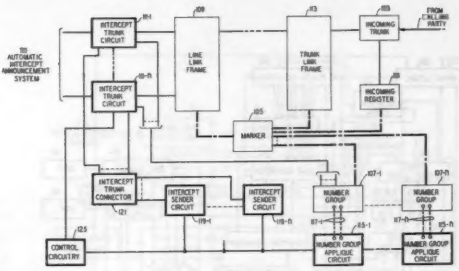
Demultiplexing apparatus is provided in accordance with the teachings of the present invention wherein a high-speed pulse train comprising a plurality of low-speed pulse trains, which each include a frame-synchronizing signal therein, is received and each of said low-speed pulse trains is demultiplexed from said high-speed pulse train without relation to its time assignment within said high-speed pulse train. The time positions of said plurality of low-speed pulse trains within said high-speed pulse train being determined by the detection of the relative time difference between each of the corresponding frame-synchronizing signals present in the low-speed pulse trains.

3,571,517
AUTOMATIC INTERCEPT NUMBER IDENTIFICATION SYSTEM

Amos E. Joel, Jr., South Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 8, 1969, Ser. No. 822,930
Int. Cl. H04q *3/72;* **H04m** *3/52*
U.S. Cl. 179—18 **14 Claims**

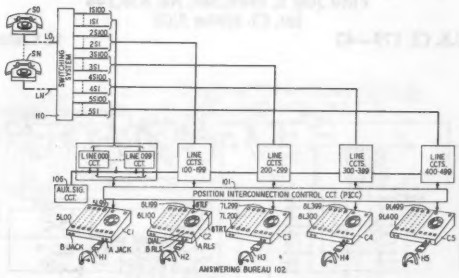
A number identification arrangement for a crossbar telephone-switching system is disclosed wherein seizure of the number group by the marker on an intercepted call is used to transmit the digits of the called number to a special sender circuit. This circuit selects a trunk terminating in an intercept announcement system, transmits the called number to the announcement system over the selected trunk, and forces the marker to connect the calling party to the selected trunk. In the alternative, if the called number is in an unequipped thousands group so that the marker seizes a trunk terminating in an intercept announcement system without seizing a number group, the seized trunk in turn seizes a special sender circuit which then transmits a predetermined code to the announcement system over the seized trunk.



3,571,518
TELEPHONE ANSWERING SYSTEM

Elmer O. Chipman, North Arlington; Robert J. McCarroll, Iselin, and Seymour B. Weinberg, Old Bridge, N.J., assignors to said Weinberg assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J. and said Chipman and McCarroll assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Aug. 13, 1968, Ser. No. 752,274
Int. Cl. H04m *5/06*
U.S. Cl. 179—27 **12 Claims**

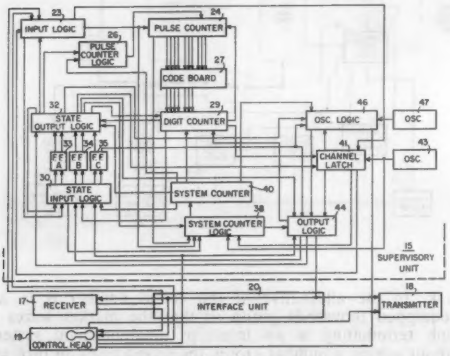


A multiple attendant position telephone switching system is arranged with switching circuitry responsive to the removal of an attendant's headset at any one position to permit an attendant at another position to answer calls that would otherwise be directed to the position from which the headset has been removed. The switching circuitry is arranged to recognize and to respond to the occupied or unoccupied status of the positions so as to interconnect unoccupied positions with adjacent occupied positions prior to interconnecting those positions with positions more remotely located. Occupied consoles may be selectively interconnected so that an idle attendant may assist a busy attendant on a one call basis under control of the assisting attendant.

3,571,519
SYNCHRONOUS SUPERVISORY UNIT FOR MOBILE TELEPHONE SYSTEM

John J. Tsimbidis, Cicero, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 31, 1968, Ser. No. 772,098
Int. Cl. H04g 7/04
U.S. Cl. 179—41 10 Claims

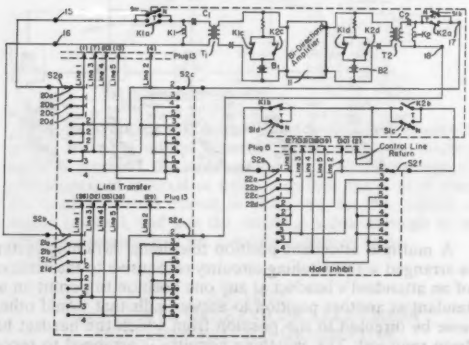


A synchronous supervisory unit for mobile telephone operation is capable of assuming any one of a plurality of states depending upon the operations to be carried out by the supervisory system. A shift from one state to another occurs when certain predetermined conditions exist. A single oscillator provides a plurality of timing pulses to synchronize the operation of the system. A separate oscillator develops a plurality of tone signals for use in the telephone system.

3,571,520
COMMUNICATION SWITCHING UNIT

James W. Clarke, Jr, Plantation, and William P. Parmer, Fort Lauderdale, Fla., assignors to Data Research Corporation, Fractional interest to each and Computer Utilities Corporation, Fort Lauderdale, Fla., Fractional interest to each

Filed July 1, 1969, Ser. No. 838,144
Int. Cl. H04m 5/08
U.S. Cl. 179—42 12 Claims

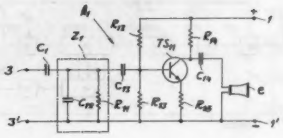


A multiposition switching unit located adjacent a telephone set includes means for connecting an incoming telephone call on any line with a remotely located telephone contacted on any other line without using a patch panel or similar device.

3,571,521
IMPEDANCE-MATCHING ARRANGEMENT FOR TELEPHONE CIRCUIT INCLUDING INPUT AND/OR OUTPUT AMPLIFIERS

Eriberto Kleissl, and Pasquale Postorino, Milan, Italy, assignors to Societa Italiana Telecommunicazioni Siemens s.p.a.

Filed June 2, 1969, Ser. No. 829,372
Claims priority, application Italy, June 3, 1968, 17279 A/68
Int. Cl. H04m 1/60
U.S. Cl. 179—81 10 Claims

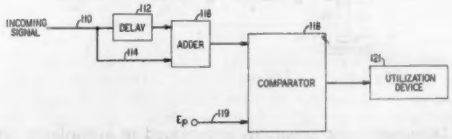


Telephone system wherein a coupling circuit including a hybrid coil connects a receiver and a transmitter in conjugate relationship between a two-wire subscriber line and a balancing network, the receiver input and/or the transmitter output including an amplifier with a pair of line-side terminals bridged by a predominantly capacitive shunt. The sum of the effective receiver input and transmitter output impedances substantially equals the line impedance over a band of voice frequencies to be transmitted over the line, these two impedances being approximately equal if both conjugate branches have amplifiers.

3,571,522
TONE DETECTOR

Leslie A. Cox, Point Claire, Quebec, Canada, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 29, 1968, Ser. No. 779,787
Int. Cl. H03d 3/02; H04m 1/50
U.S. Cl. 179—84 14 Claims



An inband signal tone detector is described in which an incoming signal is compared with the same signal delayed for a fixed time to determine degree of alternation asymmetry of the incoming signal. The result of the comparison is evaluated to detect the presence of the signal tone and the absence of all other signals.

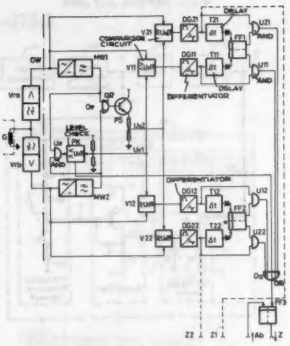
3,571,523
RECEIVING DEVICE FOR DISTINGUISHING SUPERVISORY SIGNALS FOR OTHER AUDIOFREQUENCY SIGNALS

Eberhard Herter, Stuttgart, Germany, assignor to International Standard Electric Corporation

Filed Nov. 29, 1967, Ser. No. 686,631
Claims priority, application Germany, Dec. 3, 1966, P 15 12 006.6
Int. Cl. H04m 1/50; H04q 9/12
U.S. Cl. 179—84 17 Claims

Means are provided for automatically distinguishing supervisory signals from other audiofrequency signals in a

telephone system. Supervisory signals are generally uniform, frequently being sine waves. These supervisory signals are distinguished from other audiosignals (which generally are not uniform) by determining each time the signals pass through two instantaneous amplitude levels to exceed succes-

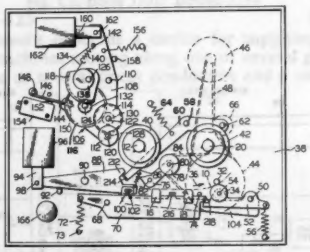


sive reference levels of different amplitudes. This information is used to set and to store a bistable device, thereby producing evenly spaced pulses of even width. Other audiosignals, having eratic waveforms, cause the same bistable device to produce pulses which are not uniform in width and spacing.

3,571,524
MAGNETIC RECORDING AND REPRODUCING APPARATUS WITH MEANS TO MECHANICALLY MEMORIZE A LENGTH OF TAPE

Isao Kozu; Akio Nishiyama; Yukitada Ayukawa, and Takao Orita, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd, Kadoma,Osaka, Japan

Filed June 18, 1968, Ser. No. 738,057
Claims priority, application Japan, June 30, 1967, 42/42720
Int. Cl. G11b *15/02, 15/20;* G09h *5/04*
U.S. Cl. 179—100.2 **9 Claims**

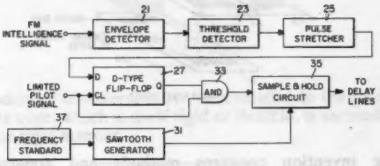


A magnetic recording and reproducing apparatus. The apparatus has tape-moving means including a tape drive capstan, a pinch roller, a takeup reel roller, and a supply reel roller, and has magnetic heads for recording and or reproducing signals on said tape. Memory means is provided for mechanically memorizing a length which the tape has moved. Driving means causes switch means to change said magnetic heads from the reproducing condition to the recording condition, and simultaneously engages said memory means with one of said reel rollers. Rewind means drives said supply reel roller to rewind said tape after the recording is completed and is moved out of engagement with said supply reel roller when the length of said tape that has been memorized by said memory means has been rewound.

3,571,525
PILOT SIGNAL PLAYBACK CLAMPING DURING DROPOUTS TO PREVENT SPURIOUS TIME-BASE ERRORS

Jerry W. Miller, Menlo Park, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Sept. 30, 1968, Ser. No. 763,641
Int. Cl. G11b *5/04;* H04n *5/78*
U.S. Cl. 179—100.2 **5 Claims**

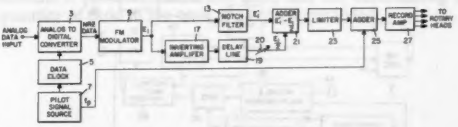


Method and apparatus for sensing tape dropouts in pilot-stabilized magnetic tape recorders and preventing spurious time-base errors. In playback, a level detecting means senses the occurrence of tape dropouts of the recorded signals. Inhibitor means respond to the occurrence of a dropout and the time-base error signal preceding the dropout is held during the dropout interval and for a time thereafter.

3,571,526
METHOD AND APPARATUS OF ELIMINATING PILOT SIGNAL INTERFERENCE IN FM MAGNETIC TAPE RECORDER SYSTEMS

Paul R. Stockwell, Redwood City, and Jerry W. Miller, Menlo Park, Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Sept. 30, 1968, Ser. No. 763,642
Int. Cl. G11b *5/04;* H03c *3/04*
U.S. Cl. 179—100.2 **9 Claims**

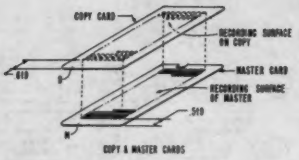


Method and apparatus for improving time-base error correction in magnetic tape recorders utilizing frequency-modulation and constant-frequency pilot signal recording techniques. Spurious nonessential frequency regions of the intelligence signal falling within the region of the pilot signal frequency are cancelled by processing the intelligence signal to generate a frequency spectrum in which the nonessential sidebands within the pilot signal region are redistributed to be concentrated on the frequency spectrum side of the carrier frequency opposite from the side of the pilot frequency. The pilot signal in the frequency range of the shifted nonessential sidebands is then added to be recorded with the processed intelligence signal.

3,571,527
MAGNETIC COPY SYSTEM

Frank E. Becker; Walter F. Klein, and William R. Yount, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 16, 1968, Ser. No. 698,294
Int. Cl. G11b 5/80, 5/86
U.S. Cl. 179—100.2 14 Claims

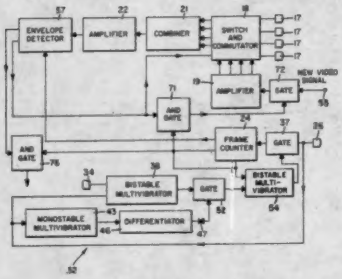


The invention concerns methods and apparatus for establishing accurate positioning and registration of master and duplicate magnetic record media during a magnetic transfer operation to insure compatibility of each kind of media in a utilization device. The invention is particularly useful with media having magnetic signals recorded according to a Boustrophedonic pattern. Such a pattern is created when the record head traces a signal path having a plurality of tracks with, as an example, tracks 1, 3, 5, 7, etc. recorded left to right, tracks 2, 4, 6, 8, etc. recorded right to left, and wherein the head steps a fixed distance at the end of each track.

3,571,528
VERIFYING THE RECORDING OF INFORMATION ON A MAGNETIC RECORDING MEDIUM

Grant M. Smith, Mountain View, Calif., assignor to Ampex Corporation, Redwood, Calif.

Filed Feb. 20, 1969, Ser. No. 801,103
Int. Cl. G11b 5/46, 27/36
U.S. Cl. 179—100.2 15 Claims



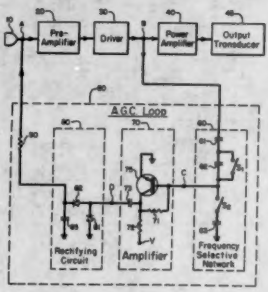
A magnetic head employed to record information on a magnetic tape is activated to read information previously recorded in a frame before it is activated to record information at another frame.

3,571,529
HEARING AID WITH FREQUENCY-SELECTIVE AGC

Iraj Gharib, Glenview, and William H. Greenbaum, Oak Park, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Sept. 9, 1968, Ser. No. 758,272
Int. Cl. H04r 25/00
U.S. Cl. 179—107 1 Claim

A hearing aid wherein automatic gain control (AGC) is provided by using an AGC system incorporating a user-variable, frequency-selective amplifier to simultaneously establish an adequate range of AGC control voltage and enable selection of the frequencies to which the AGC system responds. The control circuit comprises a frequency-selective network,

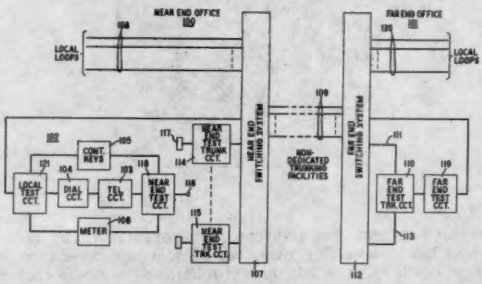


an amplifier, and a rectifier connected in cascade to limit the gain of the hearing aid only in response to received audio sound waves of frequencies within a selected portion of the frequency response range of the hearing aid.

3,571,530
SYSTEM FOR REMOTE TESTING OF TELEPHONE SUBSCRIBERS' LINES

Chauncey R. Davies, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y.

Original application May 27, 1965, Ser. No. 459,396, now Patent No. 3,410,966. Divided and this application Jan. 22, 1968, Ser. No. 721,907
Int. Cl. H04m 3/22; H04q 9/12
U.S. Cl. 179—175.2 3 Claims

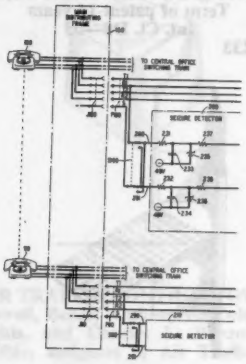


A remotely controlled telephone loop testing system is disclosed in which the loop test circuits are set up by multifrequency tone bursts from the controlling station. The direct current in the remote loop is transmitted back by being translated into a variable frequency signal which is retranslated to direct current at the control station, and displayed on a meter. All signalling is over nondedicated trunks, and a gate is provided to cut off the variable frequency signal when multifrequency signals are detected on the trunk.

3,571,531
SELECTIVE AUTOMATIC SERVICE OBSERVING IN COMMUNICATION SYSTEMS

Harvey Rubin, New York, N.Y.; Robert M. Taylor, Middletown, and Edward J. Wilkens, Jr, Freehold, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 29, 1968, Ser. No. 779,737
Int. Cl. H04m *3/24*
U.S. Cl. 179—175.2 **11 Claims**



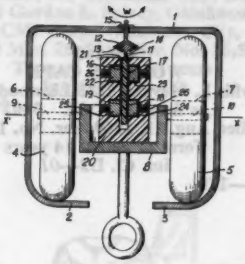
A service observing system is disclosed having circuitry which connects to a group of lines and which selectively connects either terminating calls only or originating calls only to a service observing position. A seizure detector is associated with each observed line for detecting seizures in the selected mode. The first of the observed lines seized in the selected mode is connected to the observing position immediately upon seizure for observation of the detected call.

3,571,532
DEVICES FOR FEEDING ELECTRIC CURRENT TO MOBILE ELECTRIC MACHINES

Christian Falque, 7, rue Franquet, 75 Paris 15e, France

Filed Oct. 21, 1968, Ser. No. 769,062
Claims priority, application France, Jan. 26, 1968, 137511
Int. Cl. B60l *5/00*; **B60m** *1/34*
U.S. Cl. 191—23 **12 Claims**

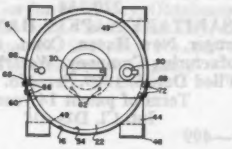
This disclosure concerns a device for supplying electric current to machines moving along one or several guide rails in which one or several linear conductors and a unit of current outlets are urged constantly by elastic members against and rub on one or several conductors, the assembly formed by the unit and a core carrying the conductors having a certain freedom of transverse movement relative to the guide to which the core, which is itself rigid or flexible, is secured in a flexible or rigid manner.



3,571,533
PRESSURE BIN

Clareance B. Coleman, Oakland, Calif., assignor to Fabricated Metals, Inc.

Filed Aug. 30, 1968, Ser. No. 756,624
Int. Cl. B65d *7/02, 7/40, 21/02*
U.S. Cl. 220—5 **8 Claims**



A portable pressure bin defined by a tubular tank terminating in upper and lower heads and having an access and a drainage opening respectively. A support structure depends from the tank adjacent the drainage opening and supports the tank in an upright position. A tubular skirt extends upwardly of the tank adjacent the head with the access opening and includes apertures for engaging the bin with hoisting means such as hooks or cables. A ring-shaped stiffener with a U-shaped cross section is secured to the free end of the skirt portion to impart rigidity thereto and prevent its deflection or crushing while the bin is suspended by the hoisting means. Means for closing the apertures in the heads, for limiting the maximum pressure inside the tank, and for determining the quantity of fluid in the tank are further provided.

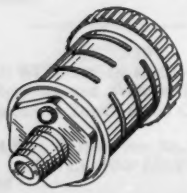
DESIGNS

MARCH 16, 1971

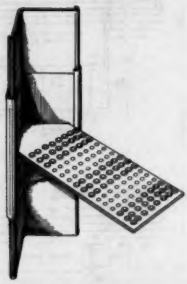
220,163
WOMAN'S CAPE
Phyllis L. Meyers, 5235 Linwood Drive, Los Angeles, Calif. 90027
Filed Aug. 11, 1969, Ser. No. 18,619
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—179

220,164
SANITARY NAPKIN HANGER
James B. Kruger, New Haven, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Dec. 5, 1969, Ser. No. 20,375
Term of patent 14 years
Int. Cl. D2—*08*
U.S. Cl. D2—409

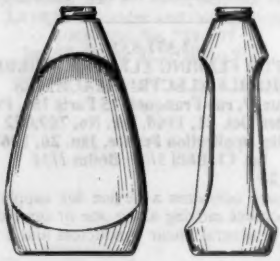
220,165
MUFFLER
John B. Trainor, 2771 Charter Blvd., Troy, Mich. 48084
Filed Nov. 28, 1969, Ser. No. 20,313
Term of patent 14 years
Int. Cl. D9—*01;* D12—*14;* D15—*01*
U.S. Cl. D8—70



220,166
CARTON STACKING BRACKET FOR PALLETS OR THE LIKE
Robert Lee Griffith, 501 Russell St., Covington, Ky. 41011
Filed Aug. 21, 1969, Ser. No. 18,794
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—233

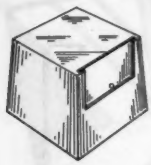


220,167
BOTTLE OR SIMILAR ARTICLE
Jim D. Barker, 7700 Loma Vista Drive, Kansas City, Mo. 64138
Filed Mar. 2, 1970, Ser. No. 21,674
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—143

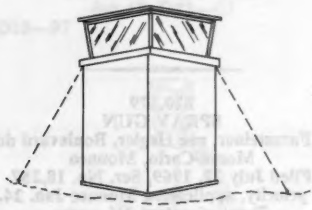


220,168
CARTON FOR BOTTLE OR SIMILAR ARTICLE
Richard G. Gelak, Cherry Hill, and Vero Ricci, Collingswood, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 22, 1969, Ser. No. 18,805
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—225

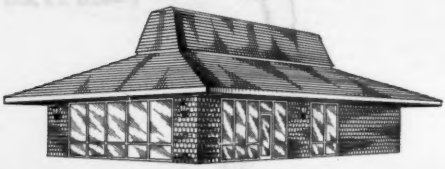
220,169
BOTTLE CAP
David L. Lundberg, 3417 S. 77th St., Omaha, Nebr. 68124
Filed Mar. 24, 1969, Ser. No. 16,413
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—275



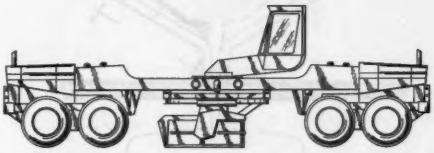
220,170
AIR TRAFFIC CONTROL TOWER
John H. Criswell, Berea, Anthony A. Coletto, Jr., Cleveland Heights, and Charles L. Benzon, Middleburg Heights, Ohio, assignors to Air Traffic Control Systems, Inc.
Filed Aug. 30, 1968, Ser. No. 13,342
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



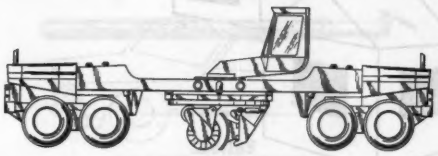
220,171
BUILDING
John A. Roschman, Dayton, Ohio, assignor to RIX Systems Inc., Indianapolis, Ind.
Continuation of design application Ser. No. 10,533, Feb. 12, 1968. This application July 9, 1969, Ser. No. 18,279
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



220,172
COMBINATION TRIMMER AND SPREADER MACHINE
George W. Swisher, Jr., Oklahoma City, Don W. Smith, Edmond, and Gordon L. Spivey, Oklahoma City, Okla., assignors to CMI Corp., Oklahoma City, Okla.
Filed Mar. 28, 1969, Ser. No. 16,507
Term of patent 14 years
Int. Cl. D12—*09*
U.S. Cl. D14—3

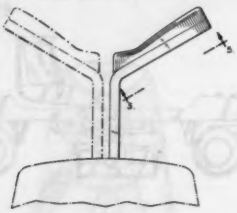


220,173
COMBINATION MOTOR GRADER AND CUTTER
George W. Swisher, Jr., Oklahoma City, Don W. Smith, Edmond, and Gordon L. Spivey, Oklahoma City, Okla., assignors to CMI Corp., Oklahoma City, Okla.
Filed Apr. 14, 1969, Ser. No. 16,740
Term of patent 14 years
Int. Cl. D12—*09*
U.S. Cl. D14—3

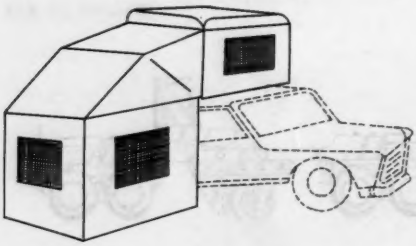


220,174
SEMI-TRAILER
John H. Holland, Norman, Okla., assignor to Arkansas Rock & Gravel Corporation
Filed Mar. 4, 1970, Ser. No. 21,737
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D14—3

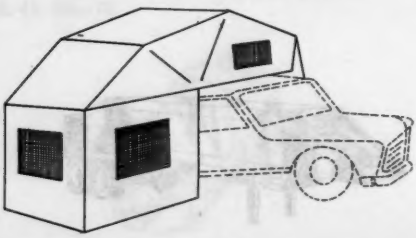
220,175
OPERATING DEVICE FOR AUTOMOBILE TRANSMISSIONS
William J. Bieber, Doylestown, and Rene L. Guerster, Maple Glen, Pa., assignors to Bieber Enterprises, Inc., Doylestown, Pa.
Filed June 30, 1969, Ser. No. 17,941
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—6



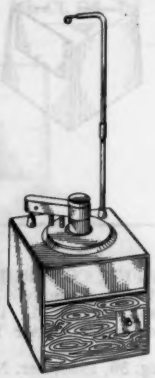
220,176
CAR-TOP CAMPER
Jimmy M. Lambert, 1501 Tonawanda Drive, Dothan, Ala. 36301
Filed Feb. 13, 1969, Ser. No. 15,761
Term of patent 14 years
Int. Cl. D12—*14*; D21—*05*
U.S. Cl. D14—27



220,177
CAR-TOP CAMPER
Jimmy M. Lambert, 1501 Tonawanda Drive, Dothan, Ala. 36301
Filed Feb. 13, 1969, Ser. No. 15,769
Term of patent 14 years
Int. Cl. D12—*14*; D21—*05*
U.S. Cl. D14—27

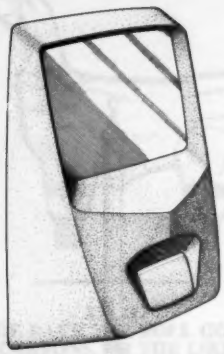


220,178
CENTRIFUGE
Richard W. Lanigan, Arlington Heights, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.
Filed Oct. 9, 1969, Ser. No. 19,486
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D16—2



220,179
SPRAY GUN
Irmgard Farnsteiner, nee Hegler, Boulevard du tenao, Monte-Carlo, Monaco
Filed July 22, 1969, Ser. No. 18,287
Claims priority, application Monaco Jan. 24, 1969
Term of patent 3½ years
Int. Cl. D23—*01*
U.S. Cl. D23—18

220,180
WALL MOUNTED HAND DRYER
Jerrell J. Griffin, Los Angeles, Calif.
(18658 Napa St., Northridge, Calif. 91324)
Filed Sept. 8, 1969, Ser. No. 19,062
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—74



220,181
FIREPLACE OR THE LIKE
Ray Derringer, Port Edwards, Wis., assignor to Preway Inc.
Filed Sept. 30, 1969, Ser. No. 19,351
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97

220,182
BLADE UNIT FOR DENTAL INSTRUMENT
James Vannes Boone, Meadows Bldg.,
Dallas, Tex. 75206
Filed Oct. 13, 1969, Ser. No. 19,515
Term of patent 14 years
Int. Cl. D24—*03;* D8—*02*
U.S. Cl. D24—1

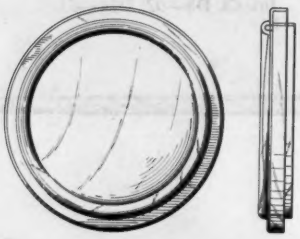
220,183
HANDLE FOR DENTAL INSTRUMENT
James Vannes Boone, Meadows Bldg.,
Dallas, Tex. 75206
Filed Oct. 13, 1969, Ser. No. 19,526
Term of patent 14 years
Int. Cl. D24—*03;* D8—*02*
U.S. Cl. D24—1

220,184
DENTAL INSTRUMENT
James Vannes Boone, Meadows Bldg.,
Dallas, Tex. 75206
Filed Oct. 13, 1969, Ser. No. 19,527
Term of patent 14 years
Int. Cl. D8—*02;* D24—*03*
U.S. Cl. D24—1

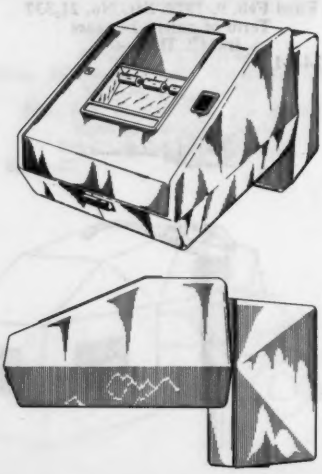
220,185
DENTAL SYRINGE
Charles C. Lake, Park Ridge, and Robert A. Grzelewski, Buffalo Grove, Ill., assignors to American Hospital Supply Corporation, Evanston, Ill.
Filed Feb. 9, 1970, Ser. No. 21,337
Term of patent 14 years
Int. Cl. D24—*03*
U.S. Cl. D24—1

220,186
CASING FOR CAPS AND CONNECTORS
Lawrence P. Mellyn, Gloucester, R.I., assignor to General Electric Company
Filed Mar. 17, 1969, Ser. No. 16,280
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1

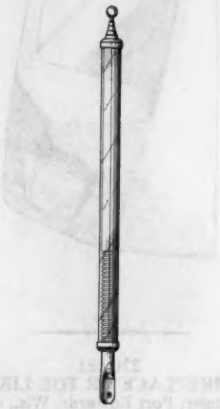
220,187
CLOSING PLATE FOR ELECTRIC METER SOCKET
Jack Moran, Muskogee, Boyd Steveson, Fort Gibson, and William A. Reynolds, Oklahoma City, Okla., assignors to M-R-S Inc., Fort Gibson, Okla.
Filed Aug. 14, 1969, Ser. No. 18,687
Term of patent 14 years
Int. Cl. D13—*99*
U.S. Cl. D26—1



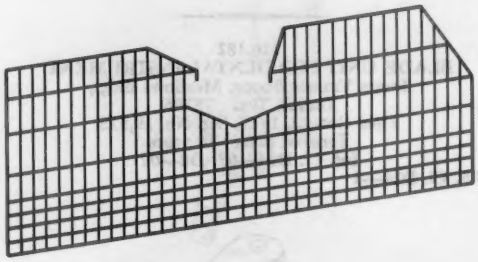
220,188
MOBILE PRINTER
Robert E. Kalvitis, Fairport, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed July 31, 1969, Ser. No. 18,497
Term of patent 14 years
Int. Cl. D14—*03;* D18—*03*
U.S. Cl. D26—14



220,189
TELEVISION ANTENNA ROD FOR INDOOR USE
Marvin P. Middlemark, 96 Shore Hill Road, Old Westbury, N.Y. 11590
Filed May 20, 1970, Ser. No. 23,064
Term of patent 14 years
Int. Cl. D14—*99*
U.S. Cl. D26—14

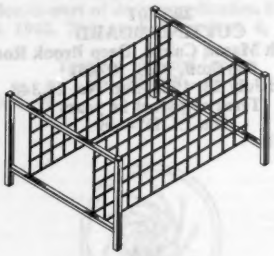


220,190
WIRE MESH PANEL FOR POULTRY CAGES
Gerald L. Kitson, 9709 Belding Road, Rockford, Mich. 49341
Continuation-in-part of design application Ser. No. 10,409, Feb. 1, 1968. This application June 24, 1969, Ser. No. 17,843
Term of patent 14 years
Int. Cl. D30—*01*
U.S. Cl. D30—2

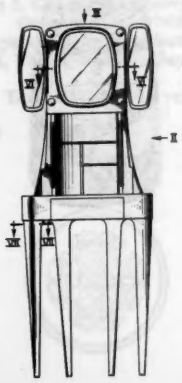


220,191
PET SNOW SUIT
Constance Giordano, 110—20 71st Road, Forest Hills, N.Y. 11375
Filed Mar. 3, 1970, Ser. No. 21,721
Term of patent 14 years
Int. Cl. D30—*04*
U.S. Cl. D30—37

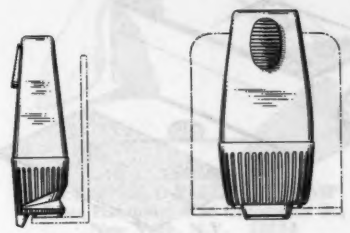
220,192
STORAGE RACK FOR ROLL GOODS OR CARTONS, OR THE LIKE
Kenneth William Baxter, Burbank, Calif. (1209 Air Way, Glendale, Calif. 91201)
Filed June 20, 1969, Ser. No. 17,786
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D33—3



220,193
VANITY TABLE
Earl R. Wright, 8124 Victoria Ave., South Gate, Calif. 90280
Filed Oct. 3, 1969, Ser. No. 19,406
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—6



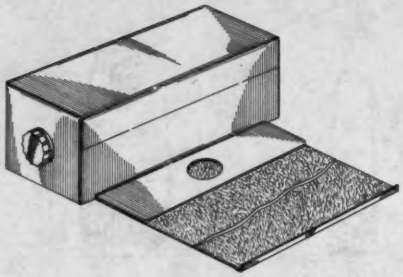
220,194
DISPENSER FOR TOILET ARTICLES
Guido R. di Giuseppe, 2519 S. Sartain St., Philadelphia, Pa. 19148
Filed May 19, 1969, Ser. No. 17,221
Claims priority, application Italy Nov. 19, 1968
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D33—30



220,195
TOY ANIMAL FIGURE
John Steffens, Ardsley, N.Y., assignor to J. L. Prescott Company, Passaic, N.J.
Filed July 22, 1969, Ser. No. 18,299
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2

220,196
TOY ANIMAL FIGURE
John Steffens, Ardsley, N.Y., assignor to J. L. Prescott Company, Passaic, N.J.
Filed July 22, 1969, Ser. No. 18,315
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2

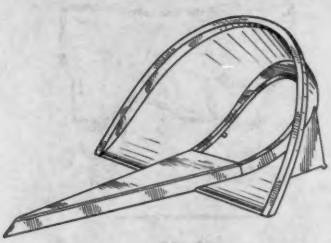
220,197
GOLF PRACTICE PUTTING MAT
John Thomas Sarvay, Lakewood, Ohio, assignor to The Standard Products Company, Cleveland, Ohio
Filed Dec. 15, 1969, Ser. No. 20,439
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



220,198
CARTON TOY
Donald F. Clauser, Sr., Leavenworth, Kans., assignor to Toy-Pak, Inc., Leavenworth, Kans.
Filed Jan. 19, 1970, Ser. No. 20,961
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15

220,199
GIRAFFE FIGURE SEAT FOR PLAY-GROUND EQUIPMENT
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.
Filed Feb. 9, 1970, Ser. No. 21,350
Term of patent 14 years
Int. Cl. D21—*04*
U.S. Cl. D34—15

220,200
TRACKWAY TURNABOUT FOR TOY VEHICLES
Cecil F. Adickes, Playa Del Rey, Calif., assignor to Tonka Corporation, Mound, Minn.
Filed May 1, 1970, Ser. No. 22,763
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



220,201
CUTTING BOARD
Elizabeth Mason Cairns, Deep Brook Road, Wyckoff, N.J. 07481
Filed July 23, 1969, Ser. No. 18,348
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D44—1

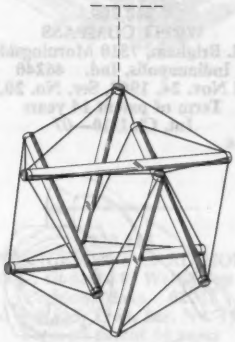
220,202
COMBINED ICE CHEST AND TRAY
Joseph D. Brown, 20 Red Fox Road, Stamford, Conn. 06903, and Robert P. Brown, 76 Burning Tree Road, Greenwich, Conn. 06830
Filed Jan. 27, 1970, Ser. No. 21,106
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D44—1

220,203
COMBINED COLLAPSIBLE DRINKING CUP AND COVER THEREFOR
Wilbert J. Gahm, 185 Elmwynd Drive, Orange, N.J. 07050
Continuation-in-part of design application Ser. No. 11,907, May 14, 1968. This application Sept. 4, 1969, Ser. No. 18,994
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—9

220,204
COMBINED COLLAPSIBLE DRINKING CUP AND COVER THEREFOR
Wilbert J. Gahm, 185 Elmwynd Drive, Orange, N.J. 07050
Continuation-in-part of design application Ser. No. 11,939, May 14, 1968. This application Sept. 4, 1969, Ser. No. 19,009
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—9

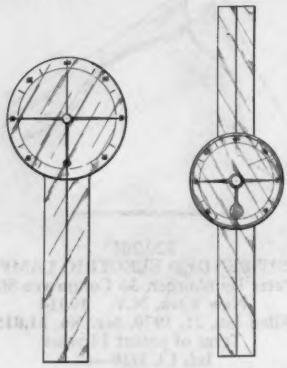
220,205
COMBINED FORK, KNIFE AND SPOON
Clement P. Saila, 790 Bay St., Toronto, Ontario, Canada
Filed Apr. 1, 1969, Ser. No. 16,528
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D44—29

220,206
SUSPENDED ELECTRIC LAMP
Peter Hamburger, 36 Commerce St., New York, N.Y. 10014
Filed Jan. 21, 1970, Ser. No. 21,015
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D48—23

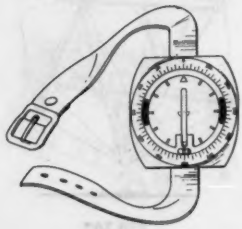


220,207
LUMINAIRE
Warren H. Edman, Hohokus, N.J., and James W. Patyrak and Kenneth F. Miller, Newark, Ohio, assignors to Holophane Company, Inc., New York, N.Y.
Filed Oct. 1, 1969, Ser. No. 19,370
Term of patent 14 years
Int. Cl. D26—*03, 02*
U.S. Cl. D48—31

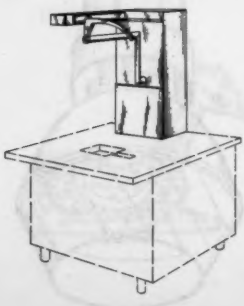
220,208
GONIOMETER
Randhir S. Dhir, 850 Amsterdam Ave., Apt. 17D, New York, N.Y. 10025
Filed Sept. 4, 1969, Ser. No. 19,028
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D52—6



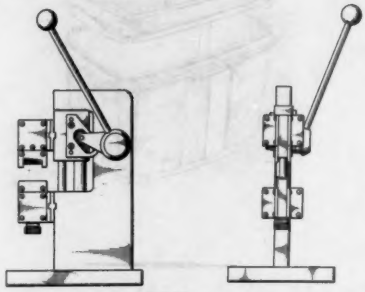
220,209
WRIST COMPASS
Owsley H. Brigham, 7510 Morningside Drive, Indianapolis, Ind. 46240
Filed Nov. 24, 1969, Ser. No. 20,231
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D52—6



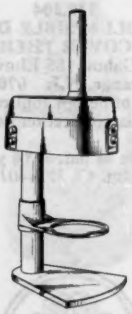
220,210
MECHANISM TOWER FOR A BUNDLE TYING MACHINE
Douglas C. Mills, Adrian, Mich., assignor to SOS Consolidated, Inc., Birmingham, Mich.
Filed Dec. 29, 1969, Ser. No. 20,655
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D55—1



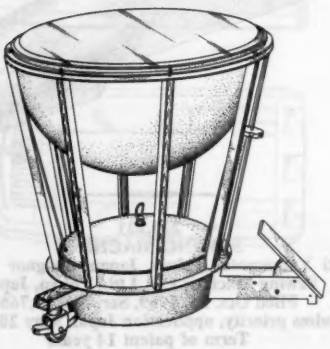
220,211
COMBINATION MINIATURIZED CIRCUIT LEAD-FORMING AND TRIMMING APPARATUS
Andrew Edstrom, San Carlos, Calif., assignor to Seymour Golub, Woodland Hills, Calif.
Filed Dec. 22, 1969, Ser. No. 20,580
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D55—1



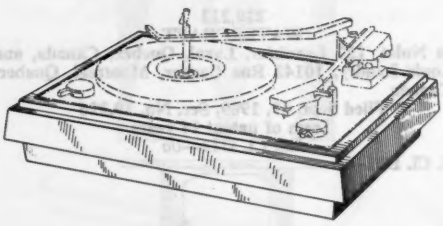
220,212
POTATO CHIP MAKING MACHINE
Frederick Charles Ashford, 14 Grosvenor Place, Hyde Park Corner, London, SW. 1, England, and Robert Charles Quarmby and Barry Charles Wright, both of Union Works, Belgrave Road, Leicester, England
Filed June 5, 1969, Ser. No. 17,531
Claims priority, application Great Britain Dec. 12, 1968
Term of patent 14 years
Int. Cl. D15—*12*
U.S. Cl. D55—1



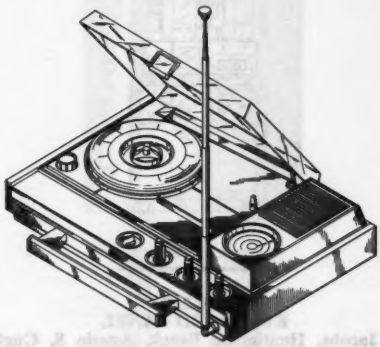
220,213
KETTLEDRUM
William H. Chaffee, Hinsdale, Ill., Donald G. Canedy, Covington, Ohio, and Josephus B. Thompson, deceased, late of Covington, Ohio, by K. E. Stade, administrator, Covington, Ohio, assignors to Columbia Broadcasting System, Inc., New York, N.Y.
Filed May 7, 1969, Ser. No. 17,105
Term of patent 14 years
Int. Cl. D17—*04*
U.S. Cl. D56—1



220,214
PHONOGRAPH RECORD CHANGER BASE
Earl E. Hoyt, Northvale, N.J., assignor to BSR (USA) Limited, Blauvelt, N.Y.
Original design application Dec. 2, 1968, Ser. No. 14,732, now Patent No. 217,295, dated Apr. 21, 1970. Divided and this application Sept. 9, 1969, Ser. No. 19,077
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4

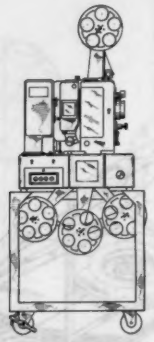


220,215
PORTABLE RADIO-PHONOGRAPH
Kaoru Eguchi, 70—25 Yellowstone Blvd., Forest Hills, N.Y.
Filed Feb. 20, 1970, Ser. No. 21,532
Term of patent 3½ years
Int. Cl. D14—*03*
U.S. Cl. D56—4

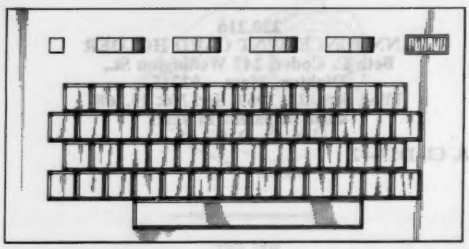


220,216
ANNOUNCEMENT CARD HOLDER
Beth C. Coder, 247 Wellington St., Dighton, Mass. 02715
Filed Sept. 23, 1969, Ser. No. 19,268
Term of patent 14 years
Int. Cl. D19—*05*
U.S. Cl. D59—2

220,217
COMBINED MOTION PICTURE PROJECTOR AND SUPPORT STAND
Charles Ajar, 4265 Clybourn, North Hollywood, Calif. 91602
Filed Oct. 6, 1969, Ser. No. 19,426
Term of patent 14 years
Int. Cl. D16—*04*
U.S. Cl. D61—1



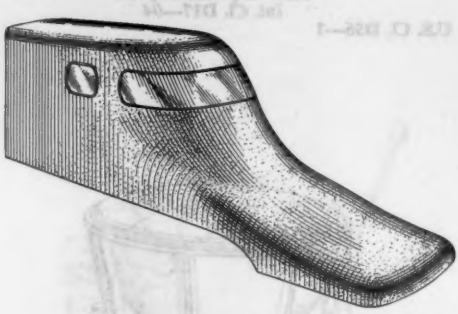
220,218
KEYBOARD PANEL
Karel Jacobs, Huntington Beach, Agazio S. Gugliotta, Hacienda Heights, Alexander M. Bradley, Huntington Beach, and Joseph A. Meng, Costa Mesa, Calif., assignors to Vanguard Data Systems, Inc.
Filed Dec. 2, 1968, Ser. No. 14,741
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D64—11



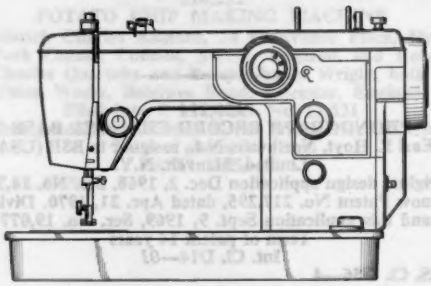
220,219
FONT OF PRINTING TYPE
Gerald E. Stahl, New York, N.Y., assignor to Pennwalt Corporation, Philadelphia, Pa.
Filed July 24, 1969, Ser. No. 18,371
Term of patent 14 years
Int. Cl. D18—*04*
U.S. Cl. D64—12

ABCDEGJL
OPQRSUVE
235689

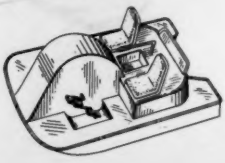
220,220
NOSE UNIT FOR HIGH SPEED RAILROAD TRAIN
Ivan L. Joy, 1616 W. 29th St., Topeka, Kans. 66614
Filed Oct. 13, 1969, Ser. No. 19,520
Term of patent 14 years
Int. Cl. D12—*03*
U.S. Cl. D66—1



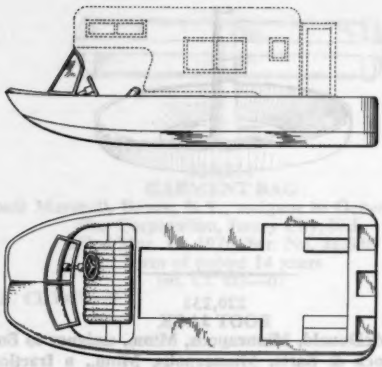
220,221
SEWING MACHINE
Yasuaki Yamamoto, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Oct. 28, 1969, Ser. No. 19,765
Claims priority, application Japan May 28, 1969
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D70—1



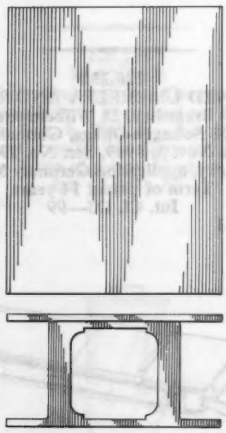
220,222
WATERCRAFT
Jean Nolet, 157 Lavoisier, Laval, Quebec, Canada, and Louis Landry, 10142 Rue Cartier, Montreal, Quebec, Canada
Filed Sept. 19, 1969, Ser. No. 19,226
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



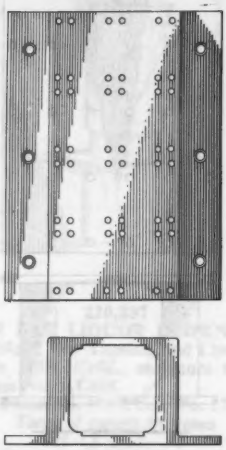
220,223
CAMPER BOAT
Harry W. Thompson, 8007 S. Chappel Ave., Chicago, Ill. 60617
Filed Sept. 10, 1969, Ser. No. 19,093
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



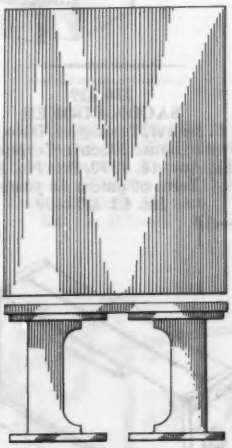
220,224
MARINE FENDER OR THE LIKE
Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,699
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1



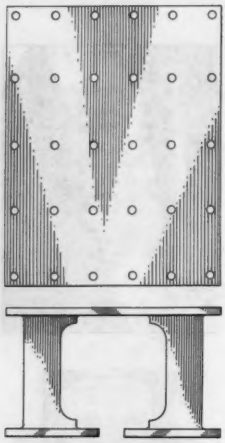
220,225
MARINE FENDER OR THE LIKE
Jirio Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,700
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1



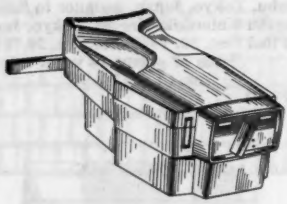
220,226
MARINE FENDER OR THE LIKE
Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,701
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1



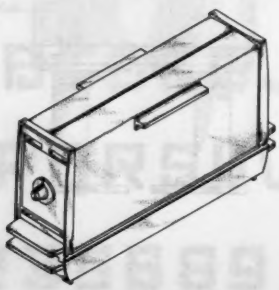
220,227
MARINE FENDER OR THE LIKE
Jiro Narabu, Tokyo, Japan, assignor to Seibu Gomu Kagaku Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 30, 1969, Ser. No. 20,702
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1



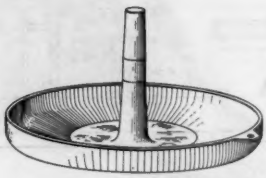
220,228
ENGINE HOUSING
Rustan Lange, Jonkoping, Sweden, assignor to Kendale Industries, Inc., Independence, Ohio
Filed Oct. 16, 1969, Ser. No. 19,588
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D77—1



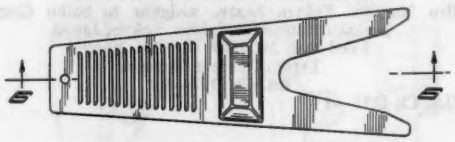
220,229
BACON COOKER
Richard F. Saurer, Lexington, Ohio, assignor to Westinghouse Electric Corporation
Filed Apr. 16, 1970, Ser. No. 22,467
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D81—10



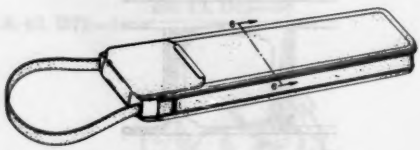
220,230
WIG STYLING TRAY
Bernard Friedman, Allentown, Pa.
Filed Feb. 27, 1970, Ser. No. 21,665
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—10



220,231
BOOT JACK
Don J. McDonald, Minneapolis, Minn., assignor to Burd, Braddock & Bartz, Minneapolis, Minn., a fractional part interest
Filed Apr. 1, 1970, Ser. No. 22,189
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D86—10

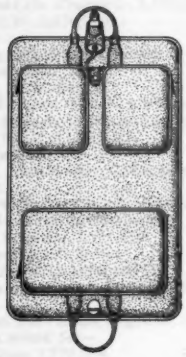


220,232
COMBINED UMBRELLA AND SHEATH
Fritz Bremshey, 28 Wilhelmstrasse, 565 Solingen-Ohligs, Germany
Filed Nov. 3, 1969, Ser. No. 19,892
Claims priority, application Germany May 7, 1969
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1

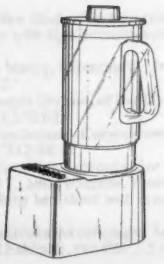


220,233
COMBINED CARRYING AND STORAGE CASE
Peter T. Schurman, Woodbridge, Conn., assignor to The Plastic Forming Company, Inc., Woodbridge, Conn.
Original design application July 1, 1968, Ser. No. 12,586, now Patent No. 216,853, dated Mar. 10, 1970. Divided and this application Mar. 9, 1970, Ser. No. 21,790
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1

220,234
GARMENT BAG
Louis Marshall, Bronx, N.Y., assignor to General Utility Bag Corporation, Jersey City, N.J.
Filed Mar. 13, 1970, Ser. No. 21,886
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—5

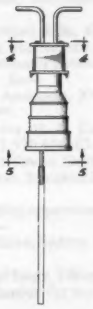


220,235
BLENDER
Juergen Greubel, Eschenhahn, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Nov. 6, 1969, Ser. No. 19,971
Claims priority, application Germany May 9, 1969
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D89—1

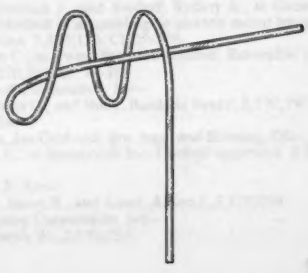


220,236
BLENDER
Juergen Greubel, 6271 Eschenhahn, Schone Aussicht, Germany
Filed Nov. 6, 1969, Ser. No. 19,972
Claims priority, application Germany May 9, 1969
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D89—1

220,237
TAPPER FOR BAR LIQUOR DISPENSER SYSTEM
Samuel W. Neidorf, Los Angeles, and Chester H. Haynoski, Granada Hills, Calif., assignors to Bar-O-Matic Sales Co., Van Nuys, Calif.
Filed June 13, 1969, Ser. No. 17,700
Term of patent 14 years
Int. Cl. D15—*12*
U.S. Cl. D94—3



220,238
DRINKING STRAW
Robert A. Bernstein, Kansas City, Mo., assignor to Specialty Premiums Inc., Kansas City, Mo.
Filed May 21, 1970, Ser. No. 23,082
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D94—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF MARCH, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A A A Pipe cleaning Corporation: *See—*
Fisco, Benjamin P., Jr., 3,570,526.

Abbott, Joseph L., Jr., to Packaging Industries, Inc. Roller die cutting machine or the like. 3,570,341, Cl. 83-55.

Abu Aktiebolag: *See—*
Murvall, Ake Eugen, 3,570,165.

ACF Industries, Incorporated: *See—*
Nelson, Norman A.; and Tomlin, Jerry B., 3,570,804.
Rollins, Dallas W., 3,570,592.

Ackerman, Daniel W.; Holmes, Robert H.; and Zemek, Albert W., to Universal Instruments Corporation. Unit carrier loader. 3,570,099, Cl. 29-203.

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki. Electronic musical instrument with a touch responsive D.C. voltage generator. 3,570,357, Cl. 84-1.26

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Marimba tone forming system for an electronic musical instrument. 3,571,481, Cl. 84-1.13

Adachi, Takeshi, to Nippon Gakki Seizo Kabushiki Kaisha. Vibrato system for electrical musical instruments. 3,571,485, Cl. 84-1.25

Adams, William E.; Bauer, Werner R.; and Schultheis, John B., to Robertshaw Controls Company. Method of making a switch with molded bearing. 3,570,120, Cl. 29-622.

Adamson United Company: *See—*
Seanor, Rex C.; and Lake, Charles G., 3,570,054.
Stephenson, Daniel W., 3,570,060.

Addis, Elsinore M.: *See—*
Richardson, James R.; and Addis, Elsinore M.,3,570,771.

Addmaster Corporation: *See—*
Grey, Michael W., 3,570,756.

Adler, Franklin P.; and Shaner, Glen R., 1/2 to Pullman Incorporated, mesne, and 1/2 to Pullman Transport Leasing Company, mesne. Railway box car. 3,570,411, Cl. 105-366.

Aerojet-General Corporation: *See—*
Conway, Carle C.; Barth, Kurt; Collis, David R.; and Steinmo, Kjell, 3,570,768.

Agence Nationale de Valorisation de la Recherche: *See—*
Anthony, Anne-Marie, nee Birbier; Faucher, Michele, nee Dupre; and Dembinski, Krzysztof, 3,571,476.

Agfa-Gevaert Aktiengesellschaft: *See—*
Neudecker, Karl; Zanner, Johann; and Theer, Anton, 3,570,382.
Winkler, Friedrich; and Thate, Kurt, 3,570,783.

Aisan Kogyo Co., Ltd.: *See—*
Arikawa, Toshinori; and Takada, Shigetaka, 3,570,823.

Aisin Seiki Company, Limited: *See—*
Yamamoto, Takekazu, 3,570,634.

Aktiebolaget Bofors: *See—*
Ohlsson, Axel Erik Ludvig, 3,570,157.

Aktiebolaget Imo-Industri: *See—*
Montelius, Torsten C. O., 3,570,722.

Albert, William C., to Singer-General Precision, Inc. Gyroscope having liquid metal suspension means. 3,570,281, Cl. 74-5.

Albrecht, Wilhelm; and Eibl, Josef, to Daimler-Benz Aktiengesellschaft. Safety steering device for motor vehicles. 3,570,326, Cl. 74-552.

Alexander, Eric Archie, to Rolls-Royce Limited. Flame tube for combustion chamber of a gas turbine engine. 3,570,241, Cl. 60-39.65

Allard, Harry: *See—*
Allard, Patrick Leo; and Allard, Harry,3,570,604.

Allard, Patrick Leo; and Allard, Harry. Soil penetrating implements. 3,570,604, Cl. 172-22.

Allen, Byron W.Power actuated plates glass cutter's table. 3,570,733, Cl. 225-104.

Allen, Byron W.Power actuated plate glass cutter's table. 3,570,734, Cl. 225-104.

Allen, Derek R., to Allen Medical Instruments Division of Bio-Dynamics, Inc. Stethoscope with high intensity audio output. 3,570,625, Cl. 181-24.

Allen, Earle F., 1/2 to Marcy, Valentine E., Jr. High vertical lift bridge. 3,570,032, Cl. 14-42.

Allen Medical Instruments Division of Bio-Dynamics, Inc.: *See—*
Allen, Derek R., 3,570,625.

Allen, Paul E., to Woodstream Corporation. Reel with integral line stop. 3,570,781, Cl. 242-84.21

Allis-Chalmers Manufacturing Company: *See—*
Comfort, Samuel T.; and Finlayson, Thomas J., 3,570,696.

Allison, Frances W. Baby bed sheet with removable panel. 3,570,026, Cl. 5-334.

Allmanna Svenska Elektriska Aktiebolaget: *See—*
Keding, Olle; and Fahlman, Per-Ola, 3,570,189.

Alvarez, Robert J.; and Horvay, Julius B., to General Electric Company. Refrigerator including ice maker water reservoir. 3,570,266, Cl. 62-338.

American Air Filter Company, Inc.: *See—*
Dahlem, Francis E., 3,570,674.
Payne, Charles, 3,570,205.

American Cyanamid Company: *See—*
Booth, Robert Ben; Hartjens, Herman; and Falvey, John Joseph, 3,570,772.

American Foods Machinery Corporation: *See—*
Pontecorvo, Nicholas E.; and Shaffer, Wilfred A., 3,570,389.

American Hoist & Derrick Company: *See—*
Parsons, Walter M., 3,570,650.

American Home Products Corporation: *See—*
Heeisterkamp, Charles A.; and Walker, William K., 3,570,385.

American Magnesium Company: *See—*
Pitts, Joe H., 3,570,664.

American Stamping Co.: *See—*
Turner, George L., 3,570,079.

American Standard Inc.: *See—*
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Miller, Jerry W., 3,571,525.
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Stockwell, Paul R.; and Miller, Jerry W., 3,571,526.

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Bunish, Steve; Ling, Ting H.; and Beasley, William A., 3,571,490.

Andersen, Jan Oddvard; Bru, Inge; and Sirevaag, Olav, to A/S Seseam. Method for connecting and disconnecting a crane with a truck. 3,570,692, Cl. 214-152.

Anderson, David Keay Crichton; Ellis, Keith Brian; Mullen, Edward; Murray, Frank McDonald; and Neilson, William, to Imperial Chemical Industries Limited. Detonator connector. 3,570,402, Cl. 102-28.

Anderson, Fletcher Andrew: *See—*
Wilson, Truman Foy; Anderson, Fletcher Andrew; and Groce, Ben Rodney,3,570,599.

Anderson, James B., to Heinz, H. J., Company. Method of and apparatus for filling bottles. 3,570,556, Cl. 141-11.

Anderson, Theodore H.; and Towne, Delbert D., to International Business Machines Corporation. Positionable separator. 3,570,844, Cl. 271-34.

Andrews, Alvadore M. Molding apparatus. 3,570,061, Cl. 18-26.

Andrews, Sydney Alan: *See—*
Parkin, Leslie; and Andrews, Sydney Alan,3,570,362.

Andrus, Frank S.: *See—*
Neumann, Harry A.; and Saure, Oliver C., 3,570,078.

Angier, John T. Drive mechanism for toy wheeled vehicle. 3,570,175, Cl. 46-206.

Anthony, Anne-Marie, nee Birbier; Faucher, Michele, nee Dupre; and Dembinski, Krzysztof, to Agence Nationale de Valorisation de la Recherche. Heating element and electric furnace equipped with such in element. 3,571,476, Cl. 13-20.

Aoki, Yoshiharu; and Shimada, Katsuyuki, to Kinki Printing Company Limited. Recloseable lid for a container for powdered chemicals and the like. 3,570,745, Cl. 229-17.

Argo Industries Corporation: *See—*
Gottlieb, Robert, 3,570,388.

Arguelles, Fernando Alfredo, to Fiber Industries, Inc. Yarn splice. 3,570,236, Cl. 57-142.

Arikawa, Toshinori; and Takada, Shigetaka, to Aisan Kogyo Co., Ltd. Carburetor with fluid amplifying elements. 3,570,823, Cl. 261-36.

Armistead, John A. Monolithic concrete slab construction. 3,570,206, Cl. 52-503.

Armstrong, Fredrick J.; and Susdorf, Robert A., to General Electric Company. Method of assembling an electric motor having speed indicating means. 3,570,116, Cl. 29-596.

Arnold, Bruce C., to Twin Disc Incorporated. Reversible power transmission. 3,570,319, Cl. 74-361.

Art Metal-Knoll Corporation: *See—*
Stark, Forest G.; and Hook, Burdette Bruce, 3,570,797.

A/S Seseam: *See—*
Andersen, Jan Oddvard; Bru, Inge; and Sirevaag, Olav, 3,570,692.

Aske, Robert L., to Honeywell Inc. Control apparatus. 3,570,280, Cl. 74-3.5

Assad, Albert J.: *See—*
Gilchrist, James R.; and Assad, Albert J.,3,570,036.

Associated Spring Corporation: *See—*
Wells, Joseph W., 3,570,757.

Astro Industries Inc.: *See—*
Breedon, Daniel F., 3,570,827.
Ateliers de La Haute-Garonne ets Auriol & Cie: *See—*
Auriol, Eloi, 3,570,031.
Ateliers Didericks Societe Anonyme: *See—*
Deborde, Albert, 3,570,551.
Atlantic Surgical Company, Inc.: *See—*
Berger, Leon, 3,570,490.
Atlas Copco Aktiebolag: *See—*
Erma, Eero Antero, 3,570,608.
Aulanko, Heikki Veikko: *See—*
Wennervirta, Kaarlo Heikki Juhani; and Aulanko, Heikki Veikko,3,570,607.
Auriol, Eloi, 1/2 to Ateliers de La Haute-Garonne ets Auriol & Cie. Die, and method of manufacturing calibrated rivets. 3,570,031, Cl. 10-24.
Austin, Charles C.: *See—*
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Corsaro, Vicent A.; and Smith, Norman F., to Western Electric Company, Incorporated. Level control system for liquid solder. 3,570,741, Cl. 228-40.

Cosenza, Mabel. Page turning device. 3,570,154, Cl. 40-35.

Coski, William D., to Lawrence Manufacturing Company. Gage cutter. 3,570,613, Cl. 175-374.

Courtot, Louis B.; and Mack, Thomas J., to Weatherhead Company, The. Method of making metal fittings. 3,570,111, Cl. 29-522.

Cowan, James A., to Chicago Eastern Corporation. Propane vaporizer. 3,570,828, Cl. 263-19.

Cowan, William Graham, to Carruthers, J. H., & Company, Limited. Overhead cranes. 3,570,684, Cl. 212-20.

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Cox, Leslie A., to Bell Telephone Laboratories, Incorporated. Tone detector. 3,571,522, Cl. 179-84.

Coyle, James Warren; and Marsella, Louis John, to Standard Packaging Corporation. Composite film and method. 3,570,748, Cl. 229-53.

Crain, Donald R.; and Huber, Edward R., to Burroughs Corporation. Two-direction carry mechanism for an amount accumulator. 3,570,760, Cl. 235-137.

Crandall, Richard N.; and Nordell, Carl H. Selective comminution. 3,570,671, Cl. 210-174.

Croft, Robert M.; Orillion, Alfred G.; and Barrett, Thomas W., to United States of America, National Aeronautics and Space Administration. Personal propulsion unit. 3,570,785, Cl. 244-4.

Cross, Donald J.; and Eglowstein, Ira, to Sylvania Electric Products, Inc. Inhibiting transfer of vibratory energy between an acoustic reproducer and a flying spot scanner tube. 3,571,509, Cl. 178-7.9

Crosslen, Louis John, to Mayer, Frank, & Associates, Inc. Theftproof merchandise display. 3,570,676, Cl. 211-4.

Croyle, Jack V., to Dart Industries Inc. Mold ejection assemblable two-piece cap. 3,570,727, Cl. 222-554.

Cullen, Frank Sansom, to Insulwool Products Pty. Ltd. Fibre collection apparatus. 3,570,653, Cl. 198-190.

Cunningham, Ernest R.; and Stockdale, William D., to Illinois Tool Works, Inc. Container carrier package. 3,570,663, Cl. 206-65.

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Dahm, Wolfram; Melcher, Erhard; Nied, Klaus; Hackenberg, Alfons; and Weber, Ladislaus, to Daimler-Benz Aktiengesellschaft. Installation for the automatic refiling of lubricating oil. 3,570,629, Cl. 184-103.

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Davies, Chauncey R., to Bell Telephone Laboratories, Incorporated. System for remote testing of telephone subscribers'. 3,571,530, Cl. 179-175.2

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Eberly, Harry C.; and Fisher, Raymond E., to Sperry Rand Corporation. Baler feeding system. 3,570,395, Cl. 100-189.

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Irizarry, Ralph. Dental milling and survey tool. 3,570,128, Cl. 32-40.
Irvin, Ronald D.: *See—*
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Isaaz, Raymond; and Vailhen, Georges, to Societe Frane. Heat-exchanger. 3,570,593, Cl. 165-166.
Ishii, Kiichi: *See—*
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Ito, Hisao: *See—*
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Jackson, Richard R. Battened kite construction. 3,570,791, Cl. 244-153.

Jacob, Theodor. Constructional toy with slotted interfitting parts. 3,570,169, Cl. 46-16.

Jarnhs Elektriska Aktiebolag: *See—*
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Jasaitis, Tadas K.: *See—*
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Jenaer Glaswerk Schott & Gen.: *See—*
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Jensen, Philip Brehmer, to Scovill Manufacturing Company. Method and apparatus for making a continuous series of fly pieces. 3,570,104, Cl. 29-408.

Joel, Amos E., Jr., to Bell Telephone Laboratories, Incorporated. Automatic intercept number identification system. 3,571,517, Cl. 179-18.

Johannes Erhard, H. Waldenmaier Erben, Suddeutsche: *See—*
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Johnson, Albert W., to United States of America, Navy, mesne. Integral plug and strut nozzle. 3,570,766, Cl. 239-265.11

Johnson, Benjamin A.; and Forster, Donald M., to Eastman Kodak Company. Aspirating agitator for dispersing non-aqueous solution in aqueous gelatin solutions. 3,570,818, Cl. 259-22.

Johnson, Gary R.: *See—*
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Johnson, Glenn D. Constant strain jar. 3,570,598, Cl. 166-178.

Johnson, Norman A.; and Hengeveld, Leonard D., to Pneuveyco Equipment Ltd. Marine towline shock absorber. 3,570,441, Cl. 114-235.

Johnson, Richard E. Map tracker. 3,570,445, Cl. 116-29.

Johnson, Robert J. Sealant strip installing machine. 3,570,379, Cl. 94-39.

Jones, Denton H. Barbecue grill with disposable top. 3,570,469, Cl. 126-25.

Jones, Robert E.: *See—*
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Jones, Robert M.; and Nourse, Howard G., to McDonnell Douglas Corporation. Apparatus for forming sheet material. 3,570,067, Cl. 18-19.

Jones, Vernon F. Bottle brush structure. 3,570,038, Cl. 15-244.

Jonson, Bjorn Lars Herman, to Jarnhs Elektriska Aktiebolag. Apparatus for quantitative indicating of small and rapid volume changes in a part of an extremity. 3,570,474, Cl. 128-2.05

Jordan, Hans; and Jordan, Peter C. Coffee maker, or the like. 3,570,390, Cl. 99-282.

Jordan, Peter C.: *See—*
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Jurkens, John H.: *See—*
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Jurkens, John H.: *See—*
Farnsworth, Le Moyne E.; and Jurkens, John H.,3,570,502.

Kabel, Heinrich, to Hellermann, Paul, G.m.b.H. Method of tieing a bundle of cables. 3,570,554, Cl. 140-93.2

Kabelschlepp GmbH: *See—*
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Kaemmer, Herbert H.: *See—*
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Kaseler, Hans-Joachim: *See—*
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Kato, Mikio. Adjustable valve for bathtubs or the like. 3,570,020, Cl. 4-206.

Kawamoto, Haruo, to Tokyo Keiki Seizosho Co., Ltd. Linearizing circuit device for an electromagnetic log. 3,570,308, Cl. 73-181.

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Kawolics, Raymond P., to Wallace-Murray Corporation. Faucet valve. 3,570,810, Cl. 251-172.

Keding, Olle; and Fahlman, Per-Ola, to Allmanna Svenska Elektriska Aktiebolaget. Control arrangement for grinding machines for preventing operation under dangerous conditions. 3,570,189, Cl. 51-134.5

Kehrberger, Achim, to Delmag-Maschinenfabrik Reinhold Dornfeld. Drilling tables for soil drilling equipment. 3,570,610, Cl. 173-165.

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Kellerman, Clarence J., to International Business Machines Corporation. Card weight. 3,570,845, Cl. 271-44.

Kelly, William M. Mixing tap. 3,570,537, Cl. 137-625.15

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Kennametal Inc.: *See—*
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Kennedy, Walter T. Pressurized communication cable and system. 3,571,486, Cl. 174-11.

Kerby, Colin. Centrifuges. 3,570,753, Cl. 233-11.

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Keulen, Gerben Jan; and Kroes, Johannes Petrus, to Bull General Electrical (Nederland) N.V. Document-extracting mechanisms for magazines for supplying record cards, cheques or the like. 3,570,843, Cl. 271-32.

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Kindell, Colin David; and Raynor, Terence Robert, to AMP Incorporated, mesne. Insulation stripping attachment for electrical connector crimping press and connector crimping press having insulation stripping means. 3,570,100, Cl. 29-203.

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Kinner, Hans-Dieter, to Foxboro Company, The. Laminar stream cross-flow fluid diffusion logic gate. 3,570,515, Cl. 137-81.5

Kinner, Hans-Dieter; Hatch, Richard W., Jr.; and Blaiklock, Paul M., to Foxboro Company, The. Method and apparatus for producing a fixed frequency fluid signal. 3,570,509, Cl. 137-13.

Kinshofer, Alfred Nikolaus. Rack for the storage of skis in pairs. 3,570,681, Cl. 211-60.

Kirkpatrick, William J., to Pennwalt Corporation. Centrifuge apparatus. 3,570,754, Cl. 233-20.

Kirsanoff, Boris J.; Merle, Joseph J.; and Winkless, Robert A., to Continental Can Company, Inc. Fluidizer and dispenser. 3,570,716, Cl. 222-67.

Kirschner, Joseph F., to Automatic Fire Control, Inc. Sway brace for piping. 3,570,794, Cl. 248-74.

Kishi, Yoshihiro. Toy bloch with internal lattice and lobes. 3,570,170, Cl. 46-25.

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Kiuchi, Yuji; Hori, Hiroo; Iwasawa, Mineo; and Hashimoto, Junichi, to Tokyo Shibaura Electric Co., Ltd. Infrared ray television apparatus. 3,571,504, Cl. 178-6.8

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Klassen, John; and Miner, Ora Lee, said Miner, Ora, L., assor. to said Klassen, John. Frameless shelf and feeding apparatus for beverage refrigerators. 3,570,680, Cl. 211-49.

Klein, Walter F.: *See—*
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Kleissl, Eriberto; and Postorino, Pasquale, to Societa Italiana Telecommunicazioni Siemens S.p.A. Impedance-matching arrangement for telephone circuit including input and/or output amplifiers. 3,571,521, Cl. 179-81.

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Knopp, Rudolf; and Fuhr, Herbert, to Bolkow Gesellschaft mit beschrankter Haftung. Gyro-driving and caging device. 3,570,282, Cl. 74-5.12
Knorring, Richard T.: *See—*
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Knudson, Giltner J. Support columns. 3,570,043, Cl. 16-85.
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Kogaki, Keiji, to Toyota-Jidosha Kogyo Kabushiki Kaisha. Hydraulic control system of an automatic transmission. 3,570,328, Cl. 74-867.
Kogert, Herbert; and Schwab, Johann, to Semperit Osterreichisch-Amerikansche Gummiwerke Aktiengesellschaft. Coated shoe. 3,570,149, Cl. 36-2.5
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Kraus, Charles E., to Excelermatic, Inc. Traction drive apparatus and control system. 3,570,317, Cl. 74-200.
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Kroll, Heinz Ernst Johannes; and Ziegler, Horst Dieter, to International Standard Electric Corporation. Control knob with integral detent and stop mechanisms. 3,570,325, Cl. 74-527.
Krouse, Robert A. Axially adjustable and collapsible steering column. 3,570,322, Cl. 74-493.
Kruschik, Julius, to Istag A.-G. Suhr/AG. Spherical plug valve. 3,570,811, Cl. 251-174.
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Kulwicki, Edwin J., to Sun Tool & Machine Co. Grinding machine for grooving glass. 3,570,186, Cl. 51-78.
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Lagen & Co.: *See—*
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Lake, Charles G.: *See—*
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Lanham, William E.; Miller, Gene C.; and Lanham, William E., Jr. Conveyor system. 3,570,651, Cl. 198-136.
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Lasch, Kurt: *See—*
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Lauener, Wilhelm Friedrich, to Prolizenz AG. Method for cooling the mold blocks of a casting machine with caterpillar mold. 3,570,583, Cl. 164-87.
Lauener, Wilhelm Friedrich, to Prolizenz A G. Machine with caterpillar mold for casting strips from non-ferrous metals, especially aluminum and aluminum alloys. 3,570,586, Cl. 164-279.
Launay, Pierre. Method of advancing bridging structures made from prestressed concrete. 3,570,207, Cl. 52-745.
Law, Russell R., to Hughes Aircraft Company. Television bandwidth reduction. 3,571,494, Cl. 178-5.4
Law, Russell R., to Hughes Aircraft Company. TV bandwidth reduction system with reduced field rate. 3,571,502, Cl. 178-6.6
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Lazaridis, Lazaros J., to Thermo Electron Corporation. Radiant tube having uniform high temperature distribution. 3,570,471, Cl. 126-91.
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Lefeuvre, Alain P.; and Sadler, Loren G., to Sperry Rand Corporation. Locking and positioning mechanism for selectively setting a discharge spout of a harvester. 3,570,641, Cl. 193-4.
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Lemelson, Jerome H. Wheeled action toy. 3,570,174, Cl. 46-205.
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Lendino, Nick. Automatic liquid level detector and indicator. 3,570,532, Cl. 137-558.
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Leonardi, Salvatore A.; and Rubino, Robert A., to United Aircraft Corporation. Fuel premixing for smokeless jet engine main burner. 3,570,242, Cl. 60-39.74
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Le Vasseur, Craig. Submersible water bicycle. 3,570,436, Cl. 114-16.
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Lewis, Richard B., II, to United Aircraft Corporation. Control apparatus and method for operating an aircraft. 3,570,786, Cl. 244-17.13

Lewis, William James: *See—*
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Linker Machines, Inc.: *See—*
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Logan, Donald C.: *See—*
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Lokval (Proprietary) Limited: *See—*
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Lombardo, Joseph. Toy motorboat. 3,570,172, Cl. 46-93.

London, William Charles, to Moline Machine Company Limited. Bobbin-changing devices. 3,570,779, Cl. 242-64.

Looman, Johannes; and Striepe, Friedrich, to Zahnradfabrik Friedrichshafen Aktiengesellschaft. Gear hobbing machine. 3,570,367, Cl. 90-4.

Loos, Kurt, to Kabelschlepp GmbH. Device for covering the slideways of machine tools. 3,570,578, Cl. 160-202.

Louderback, Charles R. Circular clothespin. 3,570,075, Cl. 24-137.

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Lucas, Joseph, (Industries) Limited: *See—*
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Lummus Company, The: *See—*
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Lundberg, Kurt Bonnie Karl Axel. Means for suspending, for storage purposes, large sheet-like articles such as drawings and the like in close, adjacent relationship. 3,570,678, Cl. 211-46.

Lutz, Eugen, K. G.: *See—*
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Mac Afee, James E.; Ivan, Steve D.; Then, Alojzy; and Paquette, Robert E., Jr., to Chrysler Corporation. Transmission selector apparatus. 3,570,320, Cl. 74-473.

MacGregor-Comarain: *See—*
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Machner, Peter: *See—*
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Mack, Thomas J.: *See—*
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Mackowiak, Damian. Profiled stabilizing fin for a ships. 3,570,438, Cl. 114-126.

Macleod, Douglas W., to USM Corporation, mesne. Banbury-type mixer dust stop. 3,570,820, Cl. 259-109.

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Mac Pherson, William F.: *See—*
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Manz, William E.; and Maycott, Clifford A., to Universal Oil Products Company. Can dispenser with positioning and release means. 3,570,708, Cl. 221-227.

Marcy, Valentine E., Jr.: *See—*
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Marin, Mario James, to Pitney-Bowes, Inc. Cam actuated paperworking assembly for folding machines. 3,570,335, Cl. 83-9.

Marker, Leon F.; and Meyer, Daniel A., to General Tire & Rubber Company, The. Filament reinforced structural ply for a pneumatic tire. 3,570,573, Cl. 152-359.

Marker, Leon F.; and Meyer, Daniel A., to General Tire & Rubber Company, The. Radial ply pneumatic tire with high angle breaker assembly. 3,570,575, Cl. 152-361.

Marker, Leon F.; Meyer, Daniel A.; Piotrowski, Henry; and Deisz, Marvin A., deceased0 (by Sansonetti, Joseph P.; executor), to General Tire & Rubber Company, The. Expansible belt for use in belted pneumatic tires. 3,570,574, Cl. 152-361.

Markowski, Henry J., to General Electric Company. Electrical insulating compositions of polyester resin, epoxy resin, polyvinyl acetal resin and finely divided filler. 3,571,491, Cl. 174-121.

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Masaoka, Yutaka, to Yamaha Hatsudoki Kabushiki Kaisha. Recoil starter and lubricating pump drive for outboard motor. 3,570,465, Cl. 123-185.

Mason, Richard K., to Bell Aerospace Corporation. Latching comparator. 3,570,516, Cl. 137-87.

Mastabar Mining Equipment Company Limited: *See—*
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Mathewson Corporation: *See—*
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Matsushima, Shunichi, to Nippon Gakki Seizo Kabushiki Kaisha. Sliding cover and housing device thereof. 3,570,579, Cl. 160-235.

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McCormick, William S.: *See—*
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Mc Gay, John B. Tube pincher for intravenous administration. 3,570,531, Cl. 137-556.

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Mc Innes, Alexander Crawford; Klages, Chester F., Jr.; and Kush, Robert S., to Mine Safety Appliances Company. Piston operated slide valve. 3,570,540, Cl. 137-625.48

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Miller, William Don. Socket fitting for bracing posts. 3,570,413, Cl. 105-369.
Miller, William Don. Ventilated tubular bracing and mount therefor. 3,570,414, Cl. 105-369.
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Yunan, Malak E., to E. I. du Pont de Nemours and Co. Compression uniformity analyzer. T884,009, 3–16–71, Cl. 33—148.

LIST OF DESIGN PATENTEES

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PATENTS WERE ISSUED ON THE 16TH DAY OF MARCH, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Adickes, Cecil F., to Tonka Corporation. Trackway turnabout for toy vehicles. 220,200, 3–16–71, Cl. D34—15.

Ajar, Charles. Combined motion picture projector and support stand. 220,217, 3–16–71, Cl. D61—1.

Air Traffic Control Systems, Inc.: *See*—
Criswell, John H., Coletto, and Benzon. 220,170.

American Hospital Supply Corp. *See*—
Lake Charles C., and Grzelewski. 220,185.
Lanigan, Richard W. 220,178.

Ashford, Frederick C., R. C. Quarmby, and B. C. Wright. Potato chip making machines. 220,212, 3–16–71, Cl. D55—1.

Arkansas Rock & Gravel Corp.: *See*—
Holland, John H. 220,174.

BSR (USA) Limited: *See*—
Hoyt, Earl E. 220,214.

Barker, Jim D. Bottle or similar article. 220,167, 3–16–71, Cl. D9—143.

Bar-O-Matic Sales Co.: *See*—
Neidorf, Samuel W., and Haynoski. 220,237.

Baxter, Kenneth W. Storage rack for roll goods or cartons, or the like. 220,192, 3–16–71, Cl. D33—3.

Benzon, Charles L.: *See*—
Criswell, John H., Coletto, and Benzon. 220,170.

Bernstein, Robert A., to Specialty Premiums Inc. Drinking straw. 220,238, 3–16–71, Cl. D94—3.

Beiber Enterprises, Inc.: *See*—
Bieber, William J., and Guerster. 220,175.

Bieber, William J., and R. L. Guerster, to Bieber Enterprises, Inc. Operating device for automobile transmission. 220,175, 3–16–71, Cl. D14—6.

Boone, James V. Blade unit for dental instrument. 220,182, 3–16–71, Cl. D24—1.

Boone, James V. Handle for dental instrument. 220,183, 3–16–71, Cl. D24—1.

Boone, James V. Dental instrument. 220,184, 3–16–71, Cl. D24—1.

Braddock, Burd, & Bartz: *See*—
McDonald, Don J. 220,231.

Bradley, Alexander M.: *See*—
Jacobs, Karel, Gugliotta, Bradley, and Meng. 220,218.

Braunn Aktiengesellschaft: *See*—
Greubel, Juergen. 220,235.

Bremshey, Fritz. Combined umbrella and sheath. 220,232, 3–16–71, Cl. D87—1.

Brigham, Owsley H. Wrist compass. 220,209, 3–16–71, Cl. D52—6.

Brown, Robert P.: *See*—
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Brown, Joseph D., and R. P. Brown. Combined ice chest and tray. 220,202, 3–16–71, Cl. D44—1.

CMI Corp.: *See*—
Swisher, George W., Jr., Smith, and Spivey. 220,172.
Swisher, George W., Jr., Smith, and Spivey. 220,173.

Canedy, Donald G.: *See*—
Chaffee, William H., Canedy, and Thompson. 220,213.

Cairns, Elizabeth M. Cutting board. 220,201, 3–16–71, Cl. D44—1.

Chaffee, William H., D. J. Canedy, and J. B. Thompson, deceased, K. E. Stade, administrator., to Columbia Broadcasting System, Inc. Kettledrum. 220,213, 3–16–71, Cl. D56—1.

Clauser, Donald F., Sr., to Toy-Pak, Inc. Carton toy. 220,198, 3–16–71, Cl. D34—15.

Coder, Beth M. Announcement card holder. 220,216, 3–16–71, Cl. D59—2.

Coletto, Anthony A., Jr.: *See*—
Criswell, John H., Coletto, and Benzon. 220,170.

Columbia Broadcasting System, Inc.: *See*—
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Criswell, John H., A. A. Coletto, Jr., and C. L. Benzon, to Air Traffic Control System, Inc. Air traffic control tower. 220,170, 3–16–71, Cl. D13—1.

Derringer, Ray., to Preway Inc. Design for a fireplace or the like. 220,181, 3–16–71, D23—97.

Dhir, Randhir S. Goniometer. 220,208, 3–16–71, Cl. D52—6.

DiGiuseppe, Guido R. Dispenser for toilet articles. 220,194, 3–16–71, Cl. D33—30.

Du Pont de Nemours, E. I., and Co.: *See*—
Gelak, Richard G., and Ricci. 220,168.

Edman, Warren H., J. W. Patyrak, and K. F. Miller, to Holophane Co., Inc. Luminaire. 220,207, 3–16–71, Cl. D48—31.

Edstrom, Andrew, to Seymour Golub. Combination miniaturized circuit lead-forming and trimming apparatus. 220,211, 3–16–71, Cl. D55—1.

Eguchi, Kaoru. Portable radio-phonograph. 220,215, 3–16–71, Cl. D56—4.

Farnsteiner, Irmgard, nee Hegler. Spray gun. 220,179, 3–16–71, Cl. D23—18.

Friedman, Bernard. Wig styling tray. 220,230, 3–16–71, Cl. D86—10.

Gahm, Wilbert J. Combined collapsible drinking cup and cover therefor. 220,203, 3–16–71, Cl. D44—9.

Gahm, Wilbert J. Combined collapsible drinking cup and cover therefor. 220,204, 3–16–71, Cl. D44—9.

Gelak, Richard G., and V. Ricci, to E. I. du Pont de Nemours and Co. Carton for bottle or similar article. 220,168, 3–16–71, Cl. D9—225.

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Giordano, Constance. Pet snow suit. 220,191, 3–16–71, Cl. D34—37.

Greubel, Juergen, to Braun Aktiengesellschaft. Blender. 220,235. 3–16–71. Cl. D89—1.

Greubel, Juergen. Blender. 220,236. 3–16–71. Cl. D89—1.

Griffin, Jerrell J. Wall mounted hand dryer. 220,180, 3–16–71, D23—74

Griffith, Robert L. Carton stacking bracket for pallets or the like. 220,166. 3–16–71, Cl. D8—233.

Grzelewski, Robert A.: *See*—
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Haynoski, Chester H.: *See*—
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Holophane Co., Inc.: *See*—
Edman, Warren H., Patyrak, and Miller. 220,207.
Hoyt, Earl E., to BSE (USA) Limited. Phonograph record changer base. 220,214, 3-16-71, Cl. 56—4.
Jacobs, Karel, A. S. Gugliotta, A. M. Bradley, and J. A. Meng, to Vanguard Data Systems, Inc. Keyboard panel. 220,218, 3-16-71, Cl. D64—11.
Janome Sewing Machine Co., Ltd.: *See*—
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Joy, Ivan L. Nose unit for high speed railroad train. 220,220, 3-16-71, Cl. D66—1.
Kalvitis, Robert E., to Xerox Corp. Mobile printer. 220,188, 3-16-71, Cl. D26—14.
Kendale Industries, Inc.: *See*—
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Kitson, Gerald L. Wire mesh panel for poultry cages. 220,190, 3-16-71, Cl. D30—2.
Kruger, James B., to Scovill Mfg. Co. Sanitary napkin hanger. 220,164, 3-16-71, Cl. D2—409.
Lake, Charles C., and R. A. Grzelewski, to American Hospital Supply Corp. Dental syringe. 220,185, 3-16-71, Cl. D24—1.
Lambert, Jimmy M. Car-top camper. 220,176, 3-16-71, Cl. D14—27.
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Landry, Louis: *See*—
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Lange, Rustan, to Kendale Industries, Inc. Engine housing. 220,228, 3-16-71, Cl. D77—1.
Lanigan, Richard W., to American Hospital Supply Corp. Centrifuge. 220,178, 3-16-71, Cl. D16—2.
Lundberg, David L. Bottle cap. 220,169, 3-16-71, Cl. D9—275.
M-R-S, Inc.: *See*—
Moran, Jack, Steveson, and Reynolds. 220,187.
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McDonald, Don J., ¼ to Braddock, Burd, and Bartz. Boot jack. 220,231, 3-16-71, Cl. D86—10.
Mellyn, Lawrence P., to General Electric Co. Casing for caps and connectors. 220,186, 3-16-71, Cl. D26—1.
Meng, Joseph A.: *See*—
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Meyers, Phyllis L. Woman's cape. 220,163, 3-16-71, Cl. D2—179.
Middlemark, Marvin P. Television antenna rod for indoor use. 220,189, 3-16-71, Cl. D26—14.
Miller, Kenneth F.: *See*—
Edman, Warren H., Patyrak, and Miller. 220,207.
Mills, Douglas C., to SOS Consolidated, Inc. Mechanism tower for a bundle tying machine. 220,210, 3-16-71, D55—1.
Moran, Jack, B. Steveson, and W. A. Reynolds, to M-R-S, Inc. Closing plate for electric meter socket. 220,187, 3-16-71, Cl. D26—1.
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Neidorf, Samuel W., and C. H. Haynoski, to Bar-O-Matic Sales Co. Tapper for bar liquor dispenser system. 220,237, 3-16-71, D94—3.
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Saurer, Richard F., to Westinghouse Electric Corp. Bacon cooker. 220,229, 3-16-71, Cl. D81—10.
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Thompson, Harry W. Camper boat. 220,223, 3-16-71, Cl. 71—1.
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CLASSIFICATION OF PATENTS

ISSUED MARCH 16, 1971

NOTE.—First number, class; second number, subclass; third number, patent number

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.66:	3,570,541	273	3,570,601		3,570,615	457	3,570,675	104	3,570,733	248– 42	3,570,793
628	3,570,542		3,570,602	5	3,570,616	211– 4	3,570,676		3,570,734	74	3,570,794
630	3,570,543	290	3,570,603		3,570,617	42	3,570,677	226– 3	3,570,735	96	3,570,795
138– 30	3,570,544	165	3,570,610	9.5	3,570,618	43	3,570,660	108	3,570,736	125	3,570,796
143	3,570,545	580	3,570,605	22	3,570,619	46	3,570,678	188	3,570,737	188.7	3,570,797
155	3,570,546	173– 23	3,570,606	26	3,570,620	47	3,570,679	227– 8	3,570,738	223	3,570,798
139– 25	3,570,547	43	3,570,607	82	3,570,621	49	3,570,680	127	3,570,739	291	3,570,799
122	3,570,548	116	3,570,608	105	3,570,622	60	3,570,681	228– 2	3,570,740	415	3,570,800
123	3,570,549	126	3,570,609	127	3,570,623	126	3,570,682	40	3,570,741	249–166	3,570,801
336	3,570,550	165	3,570,610	181– .5	3,570,624	162	3,570,683	53	3,570,742	179	3,570,802
370	3,570,551	174– 11	3,571,486	24	3,570,625	212– 20	3,570,684	229– 17	3,570,743	251– 7	3,570,803
403	3,570,552	50.61:	3,571,487	32	3,570,626	214– 6	3,570,685		3,570,744	25	3,570,804
140– 93	3,570,553	68	3,571,488	182–148	3,570,627	7	3,570,686		3,570,745	38	3,570,805
.2	3,570,554	.5	3,571,489	184– 24	3,570,628	16.1	3,570,687	40	3,570,746	65	3,570,806
147	3,570,559	113	3,571,490	103	3,570,629	17	3,570,688	45	3,570,747		3,570,807
141– 1	3,570,555	121	3,571,491	187– 29	3,570,630	44	3,570,689	53	3,570,748	149.6	3,570,808
11	3,570,556	178	3,571,492	188– 71.8	3,570,631	86	3,570,690	55	3,570,749	.9	3,570,809
99	3,570,557	175–296	3,570,611	79.5	3,570,632	138	3,570,691	58	3,570,750	172	3,570,810
140	3,570,558	297	3,570,612	112	3,570,633	152	3,570,692	66	3,570,751	174	3,570,811
236	3,570,560	374	3,570,613	152	3,570,634	309	3,570,693	75	3,570,752	254– 93	3,570,812
143– 1	3,570,561	178– 5.2	3,571,493	280	3,570,635	390	3,570,694	233– 11	3,570,753	106	3,570,813
	3,570,564	.4	3,571,494	191– 23	3,571,532	394	3,570,695	20	3,570,754	150	3,570,814
6	3,570,562		3,571,495	192– 3.57:	3,570,636	673	3,570,696	234– 86	3,570,755		3,570,815
38	3,570,563		3,571,496	11	3,570,637	217– 42	3,570,697	235– 58	3,570,756	173	3,570,816
144– 1	3,570,565		3,571,497	70.27:	3,570,638	220– 1.5	3,570,698	70	3,570,757	259– 4	3,570,817
2	3,570,566		3,571,498	81	3,570,639	4	3,570,699	101	3,570,758	22	3,570,818
220	3,570,567		3,571,499	84	3,570,640	5	3,571,533	133	3,570,759	108	3,570,819
309	3,570,568	.8	3,571,501	193– 4	3,570,641	10	3,570,700	137	3,570,760	109	3,570,820
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150– 52	3,570,570		3,571,502	194– 4	3,570,643	16	3,570,702	237– 66	3,570,762	29	3,570,822
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359	3,570,573		3,571,505	197– 36	3,570,646	63	3,570,705	21	3,570,765	96	3,570,825
361	3,570,574	7.1	3,571,506	198– 24	3,570,647	114	3,570,706	265.11:	3,570,766	122	3,570,826
	3,570,575		3,571,507	25	3,570,648	221– 5	3,570,707	.29:	3,570,767	263– 6	3,570,827
159– 8	3,570,576		3,571,508	34	3,570,649	156	3,570,709	.35:	3,570,768	19	3,570,828
160–188	3,570,577	.3	3,571,511	101	3,570,650	227	3,570,708	.39:	3,570,769	266– 1	3,570,829
202	3,570,578	.9	3,571,509	136	3,570,651	255	3,570,710	337	3,570,770	20	3,570,830
235	3,570,579	18	3,571,510	181	3,570,652	295	3,570,711	566	3,570,771	34	3,570,831
348	3,570,580	58	3,571,512	190	3,570,653	222– 1	3,570,712	241– 24	3,570,772	267– 64	3,570,832
164– 47	3,570,581	69.5	3,571,513	213	3,570,654		3,570,713	81	3,570,773	151	3,570,833
76	3,570,582	179– 1	3,571,514	214	3,570,655	3	3,570,714	207	3,570,774	269– 25	3,570,834
87	3,570,583		3,571,515	221	3,570,656	54	3,570,715	255	3,570,775	32	3,570,835
131	3,570,584		3,571,529	206– 3	3,570,657	67	3,570,716	242– 25	3,570,776	92	3,570,836
245	3,570,585	15	3,571,516	41.1	3,570,659	76	3,570,717	43.1	3,570,777	94	3,570,837
279	3,570,586	18	3,571,517	45.14:	3,570,658	88	3,570,718	56	3,570,778	254	3,570,838
283	3,570,587	27	3,571,518	62	3,570,661	137	3,570,719	64	3,570,779	315	3,570,839
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	3,570,589	42	3,571,520	65	3,570,663	319	3,570,721	107.2	3,570,782	73	3,570,841
39	3,570,590	81	3,571,521		3,570,664	333	3,570,722	194	3,570,780	271– 14	3,570,842
	3,570,591	84	3,571,522	78	3,570,665	402.13:	3,570,723	205	3,570,783	32	3,570,843
42	3,570,592		3,571,523	209– 74	3,570,666	478	3,570,724	244– 1	3,570,784	34	3,570,844
166	3,570,593	100.2	3,571,524		3,570,667	504	3,570,725	4	3,570,785	44	3,570,845
166– 64	3,570,594		3,571,525	80	3,570,668	546	3,570,726	17.13:	3,570,786	272– 56.5	3,570,846
128	3,570,595		3,571,526	210– 75	3,570,669	554	3,570,727	.23:	3,570,787	60	3,570,847
129	3,570,596		3,571,527	110	3,570,672	223– 75	3,570,728	77	3,570,788		3,570,848
174	3,570,597		3,571,528	112	3,570,670	96	3,570,729	90	3,570,789	68	3,570,849

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PATENTS

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3,570,785	3,570,645	3,570,097	3,570,055	3,571,529	3,570,340
4 : 3,570,375	3,570,650	3,570,104	3,570,086	18 : 3,570,078	3,570,360
3,570,404	3,570,661	3,570,123	3,570,089	3,570,094	3,570,400
3,570,514	3,570,671	3,570,140	3,570,132	3,570,116	3,570,443
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3,570,167	3,570,763	3,570,366	3,570,230	3,570,822	3,571,478
3,570,191	3,570,767	3,570,369	3,570,238	20 : 3,570,057	26 : 3,570,018
3,570,196	3,570,768	3,570,403	3,570,262	3,570,478	3,570,021
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3,570,209	3,570,794	3,570,464	3,570,311	3,570,848	3,570,093
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3,570,261	3,570,806	3,570,683	3,570,410	3,570,720	3,570,278
3,570,264	3,570,807	3,570,723	3,570,442	3,570,773	3,570,284
3,570,297	3,570,808	3,570,757	3,570,444	3,571,527	3,570,320
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3,570,373	3,570,849	11 : 3,570,143	3,570,541	23 : 3,570,383	3,570,363
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3,570,393	3,571,497	12 : 3,570,016	3,570,636	3,570,174	3,570,416
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3,570,422	3,571,510	3,570,205	3,570,662	3,570,450	3,570,644
3,570,436	3,571,511	3,570,481	3,570,663	3,570,628	3,570,656
3,570,446	3,571,525	3,570,503	3,570,665	3,570,784	3,570,694
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3,570,463	3,571,528	3,570,563	3,570,716	3,570,032	3,570,736
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3,570,480	8 : 3,570,197	3,570,689	3,570,738	3,570,110	3,570,743
3,570,492	3,570,312	3,570,708	3,570,770	3,570,119	3,570,760
3,570,494	3,570,477	3,571,520	3,570,828	3,570,136	3,570,793
3,570,516	3,570,512	13 : 3,570,009	3,571,483	3,570,150	3,570,835
3,570,525	3,570,633	3,570,487	3,571,496	3,570,151	3,570,837
3,570,568	3,570,640	3,570,491	3,571,499	3,570,185	27 : 3,570,037
3,570,598	3,570,737	3,570,651	3,571,507	3,570,194	3,570,050
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Defensive Publications Applications

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42 : T884,008
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